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Clinical Lectures.

CHRONIC HYDROCEPHALUS.

By Wm. T. Plant, M.D.,
Professor of Diseases of Children in Syracuse University, Syracuse, N. Y.

Gentlemen:—Our topic for to-day is hydrocephalus. This you will rightly guess to be a collection of watery fluid in the head. It has also been called cerebral dropsy.

It is a disease of early life, beginning in most cases within the first half year. It may, indeed, occur to adults, but as it cannot cause enlargement of the ossified skull its recognition before death is most difficult. The gifted Dean Swift, author of Gulliver's Travels, died, it is said, of this disease, when 78 years old. Irritability, melancholy, stupor and finally complete dementia marked the last three years of his life.

Hydrocephalus may commence before birth, expanding the head so much as to cause a very tedious labor, or even compelling a resort to the perforator to reduce the size of the head. We speak of this as the *congenital* variety, as we do also if the enlargement begins very soon after birth. When it occurs so late that it evidently has no connection with the fœtal state it is known as *acquired* hydrocephalus.

There is also another division. Usually the fluid is within the ventricles; but in some instances it is outside the brain, within the sac of the arachnoid. The former is called *internal*, the latter *external* hydrocephalus. The precise seat of the accumulation is not easy to make out during life, nor is it practically very important that it should be done.

The amount of fluid is very variable, depending on the duration of the disease and on the extent of union between the bones. With firm sutural union but slight increase in the capacity of the skull is permitted, though instances are recorded where, in children seven, eight, and even nine years of age the bones have been forced asunder at the sutures by the accumulating fluid. If, as in the congenital variety, there is no sutural union, the capacity for expansion is wonderful. The head may be more than two feet in occipito-frontal circumference. Trousseau cites a case in which this measurement was more than thirty-nine inches, and in which the skull contained thirty pounds of fluid.

If the hydrocephalus is internal, the ventricles may be so distened as to occupy nearly all the cranial cavity; and the brain, yielding before the pressure from within, parts with its convolutions and becomes spread out into a thin lamina like a pie-crust ready for the oven. When the dropsy is external the cerebrum and the cerebellum are usually found crowded into a small space at the base of the skull.

The bones at the vault are often separated by more than a finger's breadth, and the anterior fontanelle may attain a diameter of five or six inches. Union of the bones at the sutures is, of course, greatly retarded, but it does finally occur if the child lives, and in this way: Long, finger-like processes are sent from bone to bone across the gaping spaces, and between these are developed later, triangular Wormian bodies. Ossification does not always occur with the regularity that obtains when nature has not been thwarted in her plans, but irregularly, one suture uniting before the others, so that the fluid still accumulating spreads the head more in some directions than in others.

The cause, or causes, of this strange malady are rather obscure. I think the opinion is gaining with the profession that the essential cause is a slow inflammation of the arachnoid; and in internal hydrocephalus, of that part of the arachnoid lining the ventricles. Probably a tendency to it may be inherited. Marriage between blood relatives, drunkenness and syphilis are asserted causes of it in the off-spring.

Symptoms.—If congenital, there are signs of cerebral disturbance soon after birth, such as squinting and oscillation of the eyes, convulsions, gradual enlargement of the head and progressive emaciation of the rest of the body. Though the appetite may be voracious, nutrition is at fault and the infant becomes lean and shriveled. When the head has attained a certain size, it is no longer held upright on the shoulders, but, unsupported, it rolls and topples helplessly this way and that. At times it is hot and the patient restless. Pulsation may occasionally be felt through the expanded fontanelles and sutures. When the accumulation is large, fluctuation is well marked. While the head grows in all directions, there are yet some peculiarities about the enlargement. The bones of the head are most movable at their upper parts, and from this it results that the top of the forehead becomes very prominent and the parietal bones flare outwards something like the sideboards of a butcher's wagon. Owing, as Henoch says and as I believe, to paralysis of the fibres of the motor-oculi supplying the superior rectus muscle the eye-balls are turned downward so much that the pupils are half concealed beneath the lower lid. Strabismus is nearly a constant symptom, owing to paralysis of other branches of the motor-oculi nerve. Deep blue veins, which the few scattered and stunted hairs do not conceal, course lazily over the tense and shining scalp. The face, sharing in the general emaciation, loses its oval contour and becomes pinched and wasted. It is pyramidal in form,

with the base at the eye-brows and apex at the chin. The diminutive countenance with its old and solemn look; the over-hanging forehead and the down-turned eyes make a peculiar physiognomy that is known as the "hydrocephalic face."

Usually the intelligence is early affected and the child becomes stupid and semi-idiotic. There are some exceptions to this, and cases are recorded where hydrocephalic children have shown a phenomenal mental vigor.

The disease advances, but not with steady march. There are frequent pauses when the child seems brighter and the parents begin to think about recovery, but their hopes are illusive. The sight becomes impaired and is at length wholly lost. The hearing is affected in the same way, but later. Convulsions, varied in degree and in the muscles they affect, are common. Vomiting, constipation, and in sleep restlessness, with grinding and gnashing of the teeth are pretty constant symptoms. Death is most always by coma.

The course of a hydrocephalus is generally completed within a year or two. But beware of limiting the time in your prognosis. Cases in which it seemed neither possible or desirable that life should be prolonged for any time have lasted five and six years.

In a few instances the subjects of congenital hydrocephalus have lived to maturity and have then succumbed to some other malady, to which indeed there is always a liability.

In the *acquired* form, enlargement of the head is not an initial symptom as in the other, and perhaps not at all. Probably the first symptoms to attract attention are the failing nutrition, paroxysms of atrocious headache and convulsions. When the malady occurs after firm sutural union, symptoms of compression appear early and death soon occurs—usually within a few weeks.

Treatment.—Not much time need be given to the consideration of any treatment hitherto employed since little success can be claimed for any plan. I will tell you briefly some things that have been done.

One plan has been continuous strapping of the head with adhesive plaster, or enclosing it with plaster of Paris to limit expansion. It has met with little favor or success. If applied tightly there is danger of over-compression, and if not tight it can do little good. So long as the over-production of fluid continues it would be illogical to expect a cure through such means. We would never think to cure an ascites by calling in a cooper to bind the abdomen with hoops. I should state, however, that there are some favorable reports of this way of treating hydrocephalus, and especially as an aid to other treatment.

Drawing off the fluid through a fine canula introdued at the coronal suture has now been many times practised. The operation seldom does

any harm when properly done and, though generally of no avail, it has been reported as completely successful in a number of cases.

Iodide of potassium in full doses coupled with the use of iodine in lotion or ointment externally has succeeded in some cases. This was Trousseau's favorite treatment. Blisters over the scalp and to the back of the neck have had many and still have some advocates. I cannot find that there is much evidence in their favor.

Prof. Gölis, of Vienna, some years ago proposed a plan of treatment that has given some favorable results—more, I believe, than any other. It is this: Rub daily into the shaven scalp a drachm or two of a dilute mercurial ointment Give minute doses of calomel—from a sixth to a quarter of a grain twice daily. Keep the head constantly covered by a flannel cap. If the bowels become loose the calomel is to be discontinued, but the inunction may be employed for many weeks.

Through one or another of these plans you may be so fortunate as to see some cases recover, but generally your treatment of hydrocephalus will be disappointing.

Reports of Societies.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, February 6, 1883.

The President, Dr. C. C. Lee, in the chair.

Flat Sponges for use in Abdominal Surgery.—*Dr. W. T. Lusk* presented some soft, flat sponges, and briefly alluded to their advantages in abdominal surgery, especially in retaining the intestines in position, and preventing the escape of liquid material into the abdominal cavity. These sponges being but little in demand, it was dificult to obtain them at the drug stores. In order to meet the special wants of ovariotomists, Mr. Angelo, corner of Thirty-first Street and Fourth Avenue, had sent for a large supply.

Modification of Freund's Operation for Removal of the Uterus.—*Dr. W. G. Wylie*, by invitation, narrated a case as follows: The patient, a woman, sixty-five years of age, who had never borne children, was sent to him last summer, suffering from uterine hemorrhage of about one year's duration. The menopause had been passed about nine years before. The patient was very nervous, but well nourished and apparently in good health. The hemorrhage of late had become more severe, and she suffered from neuralgic pain extending upward on the right side, in the neighborhood of the uterus. Upon physical examination, the vagina was found to be small, the cervix rather large, and the uterus three

and a half inches in depth. Considerable hemorrhage followed the withdrawal of the sound. Slight dilatation was made, and uterine cavity was curetted, bringing away quite a mass of broken-down tissue, which was not examined microscopically. The case was supposed to be one of so-called granulations of the lining membrane, or possibly of malignant disease. Hemorrhage ceased for two months after the curetting, aud pain was relieved to some degree. The patient was then seen also by Dr. Sims, who believed that she was suffering simply from granular degeneration of the lining membrane of the uterus, and that Dr. Wylie had probably failed to remove all of the granulations at the former curetting. Dr. Wylie then dilated the cavity a second time, and curetted it thoroughly. Dr. Welch examined a piece of tissue, about the size of a pea, which had been removed, and pronounced it undoubted epithelioma. Pain and hemorrhage were again largely relieved for about a month after the second operation. The patient consented to an operation for removal of the uterus about three weeks ago, and entered Bellevue Hospital. Dr. Lusk and Dr. Polk saw her in consultation with regard to whether it were best to remove the uterus through the vagina or through the abdominal walls. As the vagina was atrophied, and as it would be difficult in operating by that method to determine, as the operation proceeded, whether the tissues outside of the uterus were involved in the cancerous disease, Dr. Wylie decided to make the abdominal incision. Expecting to meet with considerable fat, and, on account of senile atrophy, with immobility, as the operation proceeded, it was thought impossible to carry out Freund's method perfectly, and the following procedure, which it was believed would require not more than half the time, was adopted. The incision extended from the umbilicus down nearly to the pubes. The uterus was moderately pressed against the abdominal wall by a Sim's repositor, introduced into the cavity, and held by an assistant. On account of the bulkiness of the fat and the distended intestines, it was necessary to lay the latter on the abdominal wall. The body of the uterus was then grasped with a strong forceps, and turned from side to side by another assistant as occasion required. By means of a simple curved needle in a holder held in the right hand, while the left served to receive the point of the needle and protect the intestines, etc., two ligatures were tied round the broad ligaments, one just outside of the ovary, dipping below the round ligament, and the other nearer the body of the uterus. Afterward a cork, fastened to the end of a stick, was then passed up the vagina, and pressure was made in Douglas's cul-de-sac, lifting the uterus upward. A trocar was passed from the above down through the tissues into the cork held firmly below in Douglas's cul-de-sac, and the end of the cannula was brought out at the vulva. Beforehand, a long loop of very strong silk (soft wire would have been better) had been fixed in a hollow piece of hard rubber just the length of the vagina, so that the

lower ends of the loop could be attached to an ecraseur, and made to tighten the loop at the uper end of the tube where it came out of the tube on its anterior surface just below the end. By means of a small wire passed down through the cannula of the trocar, this loop was drawn up through Douglas's cul-de-sac into the abdomen, and held by an assistant, while the broad ligaments were cut between the ligatures placed in them, and the bladder separated from the anterior wall of the uterus down to the vaginal junction. The loop was then passed over the body of the uterus and slipped down to the vagina below, while it was being tightened by the ecraseur, worked by an assistant at the outlet of the vagina. At the same time, the uterus was held upward by strong forceps clasping the fundus. The object of this loop ligature being to ligate all vessels not included in the outside ligature, first put in the broad ligaments and to grasp the upper end of the vagina just below the cervix, so that, when the whole uterus was enucleated, there would be no bleeding points, and only three ligatures left. When the loop was tightened, the bleeding was entirely stopped. By means of curved scissors, the uterus was readily cut off just above the loop ligature. It was then discovered that a small part of the cervix had been included in the loop, and the uterus cut off just at the vaginal junction. There was no bleeding at this time; but, in attempting to elevate the stump with a large pair of forceps, the loop ligature slipped up over the stump. It was withdrawn from the vagina and the cork plug put in, and the stump pushed upward, and, the cork being quite large, the upper end of the vagina was put on the stretch and distended. While the stump was held up and steadied, by means of the same curved needle used on the broad ligaments, armed with a ligature and held in Sim's needle-forceps, two ligatures were passed on either side of the stump, dipping down into the vagina in close proximity to the cervix. After these were tied and the cavity cleansed, one bleeding point was found in the left broad ligament, a short distance from the ligature just tied. A third ligature was passed from before backward with the curved needle, and, when tied, all bleeding ceased. The cork plug held by the assistant pushing up the stump made the passing of the ligatures easy, and lessened very much the risk of including the ureters in the ligatures.

The uterus, upon examination, was found entirely free from cancer, except the lining of the body, which was pretty well covered by a growth that filled and somewhat distended the cavity, and the point of excision was full half an inch or more below the lowest part diseased. The small part of the atrophied cervix left as a stump was found perfectly healthy, and it was decided not to remove it. After waiting some time, to be sure that no points were bleeding, a drainage tube was put in and the wound was closed, and the operation completed in about one hour and forty-five minutes, with the patient in good condition. Three hours later

she came out from the anæsthetic, and had a good pulse of 96. She was clear mentally, and did perfectly well during the first twenty-six hours after the operation, the temperature not rising above 101° Fahr., nor the pulse above 108. At the end of that time she became slightly delirious, picked at the bed-clothing, and complained of dryness of the throat; there was slight dilatation of the pupils, the respiration and the pulse became more rapid, and she died thirty-six hours after the operation. The patient, being addicted to the use of opium, received one hundred minims of Magendie's solution in the twenty-four hours, and, by mistake, also a twelfth of a grain of atropine in divided doses, which might in part account for certain of the symptoms, but Dr. Wylie could hardly believe it could have been the cause of death, nor was anything found at the fatal issue. Peritonitis was not apparent, and there had been no hemorrhage. Dr. Welch had examined the specimen, and pronounced it epithelioma.

Dr. Lusk remarked that there was one important point connected with the case which Dr. Wylie had not mentioned, namely, that it was one of undoubted primary epithelioma of the uterus—a condition which some pathologists of large experience doubted ever existed. Freund found that by means of pressure with the colpeurynter for a week before the operation the uterus could be elevated even as high as the umbilicus. At the time of the operation the ordinary vaginal tampon was introduced, and, with the uterus thus lifted above the brim of the pelvis, one of the difficulties of extirpation was removed.

Dr. Wylie said he could fully appreciate the advantage of the procedure, and, while he had not then heard of its being practiced by Freund, he thought of resorting to tampons in the present case to render the uterus more movable, but she was so nervous that he decided not to do so. During the past few months he had several opportunities to observe how quickly and decidedly forcible traction upward on the uterus during operation was followed by shock, and he thought that this might be very much lessened, if not obviated, by getting the uterus accustomed to being forcibly elevated before operating.

Dr. J. E. Janvrin remarked that it was a difficult matter to apply the third ligature in the manner practiced by Freund for controlling hemorrhage from the uterine arteries, whereas the method adopted by Dr. Wylie would seem to be very easy of application and quite efficacious. In a case in which he performed the operation he made use of the former method, and experienced considerable difficulty in carrying it out. In reply to question by the President, he said that his own patient died at the end of thirty-six hours.

The President remarked that he knew of no other case in New York in which the operation had not terminated fatally. The danger of a fatal issue in these cases was enhanced by the fact that, owing to the usual ef-

fects of malignant disease upon the general health, the patient was less able to withstand primary and secondary shock than where the operation was done for non-malignant disease.

The proper field for hysterectomy, as had been suggested by Dr. Polk at a previous meeting of the society, seemed to him to be limited to such cases as sarcomatous growths, where the disease was confined to the uterus itself and was not in danger of recurring after the operation, and where the patient's general condition was not depraved from the constitutional effects of the disease, and was better able to withstand the dangers incident to the operation itself. The mortality attending Freund's operation, as reported by all surgeons except by the author himself, had been so great that American physicians had little confidence in it.—*New York Med. Journal.*

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, April 5th, 1883.

The President, R. A. Cleemann, M.D., in the Chair.

Dr. W. Goodell exhibited some

Calcareous Particles Passed per Vaginam.

The previous history had been that of menorrhagia and multiple fibroids were found in the womb. One of these fibroids had evidently taken on calcareous degeneration and had subsequently broken down, and discharged these fragments into the uterine cavity. He stated that these particles were not true bone, but merely the product of a disorderly deposit of lime, which possessed none of the osseous elements not even cartilage corpuscles. This calcareous degeneration tends to cure the disease by breaking of the vascular filaments of attachment and lessening the nutrition of the fibroid. In one instance, the specimen of which is now in the Musem of the University of Pennsylvania, he had seen three fibroids wholly converted into stone. These stones were however very light and not like those of the bladder. It was the expulsion *per vaginam* of these uterine calculi which had greatly puzzled the older anatomists.

Dr. Goodell also exhibited two calculi and related the following histories of two cases of

Stone in the Female Bladder associated with Fistulous connection with the Bowels.

The first case was that of a patient of Dr. C. A. McCall who sent her to him in October 1881. For the preceding four years of she had suffered very much from vesical tenesmus. She frequently broke wind *per urethram*, and often passed through the same channel the seeds of raspberries, of tomatoes, and of pears. A year before Dr. Goodell saw her she had voided a great deal of her urine per rectum for several weeks. Dr. Goodell detected two stones in the bladder and removed them. At

once all the symptoms of fistulous connection between the bladder and the bowels dissapeared and the patient got well. This rapid recovery led him to think that the vesical tenesmus was so great as to cause a rectal tenesmus which was masked by the former, and that the seeds and wind were voided per rectum unconsciously by the woman when attempting to empty the bladder. But he had been led to change his views by the following case which he had seen with Dr. Wm. Carson and which Dr. Edward Carson was kind enough to report for him. Misled by the first case, Dr. Goodell was not at first disposed to admit the existence of a fecal fistula but from the subsequent history of the case there can be no doubt of it. In this case he believed that a pelvic abscess had burst into the bladder and also into the rectum or small intestines, which had established the communication between the two viscera. Like the first case, as soon as the calculus was removed the fistulous tract closed and the patient got well. "Mrs. R., American, aged 50 years, the mother of five children. For three or four years prior to Nov. 1881 she was troubled occasionally by the passage of small calculi, but her health was reasonably good with the exception of backache and an almost constant pain in the right illiac region. She often expressed her belief that there was something growing in the right side. She never applied to her physcian for relief of this suffering. She was also troubled with constipation. In Nov. 1881 she made a visit to the country and took a long walk. On her return home she had a constant desire to urinate and she then noticed, for the first time, that her urine had an unnatural color and a very unpleasant odor. The quantity passed was not excessive. This condition continued for five or six days when there occurred a sudden gush from the bladder, of a very offensive mixture of pus and urine, accompanied by great pain and straining. Her pain and distress became so great and was so augmented by being on her feet that she was compelled to remain in bed." After the free discharge occurred, the pain in the right illiac region ceased and she has never had any return of it. As she was troubled with constipation she was directed to eat stewed prunes and she soon noticed that the prune skins came from the bladder as did other articles of food along with the urine. Every day she was troubled with the escape of gas through the urethra and this gave her as much pain as the passage of solid matter. She says that she occasionally passed urine through the rectum. She became greatly emaciated and was but partially relieved of her suffering by the constant use of morphia. Until Jan. 20th 1882 she was under the care of Homeopathic physicians. On that date Dr. Wm. Carson was called to the case. Feb. 10th Dr. Wm. Goodell saw her and diagnosticated stone in the bladder. Feb. 20th she was etherized and the urethra dilated and a digital examination proved the existence of a culculus, about ¾ of an inch in diameter, attached to the fundus of the bladder. This was removed by Dr.

Ellwood Carson. In attempting to dislodge the calculus it crumbled on slight pressure with the extracting forceps and proved to be a mass of fecal matter with a calcareous crust but slightly thicker than an egg-shell. While she was under the influence of the anæsthetic an attempt was made to wash out the bladder but after injecting ʒxij of water and finding that it escaped into the interior of the body and did not remain in the bladder the washing out process was discontinued. After she regained partial consciousness and made a strong straining effort the injection came away through the urethra. As there were some doubts expressed as to the possibility of there being an opening from the bowels to the bladder she was induced to eat a few stewed figs and the seeds were *seen* to come from the urethra; on another occasion ʒviij of carmine colored water was injected into the rectum and was immediately drawn from the bladder by means of a catheter. After the removal of the calculus it was thought proper to keep the bladder washed out daily with warm injections, and to regulate the bowels with mild aperients, but after persisting in this course of treatment for four days it was abandoned as it caused her great discomfort and did not improve her condition. Afterward she was allowed to eat such food as the system craved, care being taken to select such articles as would not leave an irritating residuum. She rapidly improved and since April 1882 has had no trouble with her bladder. If she eats acid fruits or drinks lemonade she has some irritation in passing urine. That there was a fistulous opening from the bladder to the rectum, there can be no doubt; and when we take into consideration the fact of an abscess forming somewhere in the right illiac region and pressing into the bladder and that the food passed from the bladder in a semi digested state and the absence of a fecal odor, there is a strong probability that there was also an opening from the small intestines into the bladder."

Dr. J. C. Morris had seen two cases of pelvic abscess bursting into the bladder. One case was in the person of a night-nurse at the Episcopal Hospital. A tumor in the lower part of the abdomen first attracted attention. The uterus was drawn up out of reach of the finger when making a vaginal examination; and inflammatory mass could be felt between the uterus and bladder; every half hour a mixture of urine and pus was voided *per urethram*. If a catheter was passed into the bladder and turned to the right urine escaped through it, but if it was passed to the left nearly pure pus passed through it. Examination with the sound showed a large fibroid in the anterior wall of the uterus. This tumor having undergone purulent degeneration and a fistulous opening being established into the bladder, the pus escaped through the bladder. A galvanic stem pessary five and a half inches long was introduced into the uterus and was finally successful in effecting its reduction to the normal size. This woman died of fibroid phthisis and at the *post-mortem* examina-

tion the uterus was found but slightly enlarged and the fistula into the bladder was not seen but a communication from the small intestine into the bladder was discovered.

Dr. Wm. H. Parish had seen one case of fistulous communication between the bladder, vagina and small intestine, resulting from an attempted abortion and consequent cellulitis. After long continued pelvic symptoms food commenced to pass through the bladder and the anterior and upper portion of the vagina. Water injected into the vagina passed into the bladder but a sound could not be made to follow it. The food which passed through the fistula was incompletely digested.

Dr. Elliot Richardson read a

REPORT ON RESULTS OF POST-MORTEM EXAMINATION OF THE BODY OF LINA EARL.

This woman was operated upon September 22nd, 1880 for removal of a child from the uterus by Cesarean section as modified by Perro and Müller. A report of the case was published in American Journal of Medical Sciences January 1881. The immediate results of the operation were in every way favorable. The child was living and the mother made a speedy recovery.

She died in New York City on February 24th, 1883. Two years and five months after the operation. She had been for two years previous to her death, at times an invalid and was under my care occasionally for the treatment of attacks of acute rheumatism, anemia, etc., to which her life of hardship and exposure as an exhibting curiosity rendered her peculiarly liable. The more recent symptoms which appeared during the last illness I did not witness but learned were attributable to defective action of the kidneys. At the *post-mortem* examination, made about 9 p.m. on Feb. 24th ten hours after death, there were present Drs. Satterthwaite and Hegerman of New York and myself.

Inspection of the body showed the long bones of the extremities to be deformed as in rachitis; deformities which had not been so apparent during life. General Anasarca was present. On the surface of the abdomen a cicatrix was observed extending from a point about 1½ inches above the umbilicus to within about ¾ inch of the sympysis bubis. This cicatrix was the remains of the abdominal incision made at the time of the operation for her delivery and occupied the linea alba directly in the median line except that at the umbilicus it was deflected to the left. Nearly the whole of that portion of the cicatrix extending between the symphisis pubis and the umbilicus was the site of a large hernia, which however did not extend into the latter. This hernia I had seen during the patient's life. It began to appear about six months after the operation and received no treatment whatever until by its size it became inconvenient, then a bandage or truss was applied and this she wore constantly until her death. The production and enlargement of the hernia had

been greatly favored by the woman's course of life as an exhibitor of herself and child, for the latter she lifted up and held in her arms many times a day in order to display it to her visitors, even after it had become much to heavy for her to carry.

The body was opened by a long incision from the top of the sternum to the symphisis pubis. This incision was deflected to one side opposite the cicatrix of the old abdominal wound in order that the relations of this to the abdominal contents might be more closely observed. The body as before stated was anasarcous throughout, some clear serous fluid was found in the peritoneal cavity and a good deal in the cavities of the pleura and the pericardial sac. I very much regret that I have no data of microscopic appearance of any internal organ or tissue to give. Only the gross lesions which could be detected by the unaided eye in a hasty examination can be given. The heart was not opened but the left ventricle appeared abnormally large. The lungs were œdematous and pneumonia of the right side was observed. The spleen was enlarged. The liver presented an appearance of fibrous or "hobnail" degeneration. The kidneys showed unmistakably the existence of Brights' disease. The abdominal and pelvic cavities gave no evidence of any peritoneal or cellular disease. The hernia was found to be covered by peritoneum and skin; the remaining structures having parted to admit the protrusion of the intestines and peritoneal covering. No adhesions between the cicatrix and subjacent structures could be detected except at the lower angle of the wound. It was at this point that the stump of the uterus had been fixed in a manner similar to the disposal of the pedicle in ovariotomy. A fibrous band was found extending from a depression in the abdominal wall at this point to a body consisting of the remains of the uterus.

Dr. Satterthwaite who examined these specimens, writes me that this body, which occupied nearly the normal position of the cervix uteri except that it was displaced somewhat anteriorly, presented the following characteristics. "The extreme length of the stump was 4.75 ctms (1.87 inches); vertical thickness 2.5 ctms (1 inch); its breadth 1.5 ctms (½ in.). On attempting to pass a uterine probe into the os externum, it was found to enter with difficulty, though the cervical canal was capable of admitting a No. 10 (English) Sound. The mucous membrane was coated with a deposit of white, thick, gelatinous material and was intact for a distance of 3.5 ctms (1¼ inch). No naked-eye evidences of cicatricial tissue were made out at the amputated extremity of the neck."

Examination of the pelvis in situ was of much interest to me, measurement of the superior strait gave for the

Conjugate diameter	2 inches exactly.
Transverse "	4¼ "
Oblique "	4⅜ "

The pelvis was a rachitic one although the pavilion did not present the wide spreading alæ or the diverging anterior-superior spinous processes of the ilia which are the usual deformities of rachitis in this part of the pelvis. The true pelvis however presented highly characteristic deformities. The sacrum was at its upper part dislocated and pressed downward and forward into the pelvic cavity, while the lower extremity being held by ligamenteres to the ischiæ and pubic bones caused a sharp bending forward of the last three vertebræ of the sacrum. This deformity implied abnormal softness and pliability of the bone at a time when the individual was of sufficient age to either stand or sit erect so that it alone is conclusive evidence of rachitis having existed. The normal curvature of the pubic bones was nearly lost so that they receded from the symphisis in nearly straight lines backward and outward to join the ischiæ and illiæ. The two pubic bones when viewed from above forming an abnormal angle at the symphisis. The shape of the superior strait was therefore obtusely cordate, deeply indented at its base by the promontory of the sacrum projecting far into it. I was much surprised at the evidences of rachitis, which became more and more conclusive as the examination proceeded, since the history of the patient formally given me was that of excellent health from birth to the time of the operation in 1880, and we were told by the woman and those who had known her best in early life that she was in her figure an almost exact counterpart of her father. These facts—as I supposed them to be—led me to believe that her shape was due to arrested growth and not rachitis. It will be of interest to know that the child, of this woman, is now living, that he is well developed and presents no deformity nor any symptoms of rachitis. He is of fair size for his age.

In closing I would draw the following conclusions from the examination.

1st. That the deformity of pelvis and extremities was due to rachitis.

2nd. That the operation had nothing to do with the patient's death.

3rd. That the operation caused the patient no inconvenience except from the hernia which would either not have become developed, or at most would have been small, had it not been for the exposure of the woman to unusual strain and her total neglect to resort to any treatment until the hernia became large.

4th. That success in so far as the woman was concerned would have been possible and even probable with diameters so large if embryotomy had been resorted to in this case, but the operation would still have been dangerous and the child would necessarily have perished.

Dr. R. P. Harris remarked that of five Porro operations in this country, four have been fatal. This is the first successful operation in which a *post-mortem* examination has been obtained after entire recovery.

In reply to Dr. A. H. Smith, Dr. Richardson stated that no trace of a

fistulous opening between the stump of the uterus and the abdominal wall existed at the time of death.

Dr. B. F. Baer read the history of a case of

SUPPURATING CYST OF THE BROAD LIGAMENT, WHICH HAD PERFORATED THE BLADDER.

And exhibited the specimens removed by Laparotomy. The characteristic points were chills, exhaustion, anorea, tenderness throughout the lower abdomen and a small, painful tumor in the left illiac region, with great irritability of the bladder. Pulse 120, temperature 100° to 102°. The tumor extended down between the bladder and uterus and the latter was retroverted. Douglass cul de-sac was occupied by a thin walled fluctuating cyst about the size of a large orange. The uterus could be moved slightly from side to side. The anterior tumor rested on the bladder and was adherent to it. The history showed a slowly growing cyst with purulent contents, commencing about three years before, when the first chills and mild septicemic fever had occurred, gradual emaciation had been progressive since that time. Tympanites resonance of the tumor gave evidence of decomposition with evolution of gas. When the catheter was passed before operating several ounces of very fetid pus flowed through it showing a spontaneous rupture of the cyst into the bladder. The cyst was found adherent to the abdominal wall and to the bladder but not to the intestines nor uterus. The cyst was aspirated and removed by laparotomy. The pedicle consisting of broad ligament and fallopian tube, to which the left ovary was adherent was transfixed and ligated. The cyst in Douglass pouch arose from the opposite broad ligament, it had formed no adhesions and was removed without evacuation of its contents. The ovary and fallopian tube were healthy and were not removed. The aperture in the bladder through which the contents of the cyst had escaped was valvular and was closed by the compression furnished by the external dressings. The patient died from exhaustion soon after the close of the operation. Dr. Baer introduced cases from W. S. Atlee, Peaslee, Keith, Geo. F. French, and Goodell to prove the correctness of the principles upon which he operated.

Dr. W. H. Parish thought Dr. Baer's rules safe and sound, he had removed a suppurating cyst with anterior adhesions, an experienced operator who was present recommended delay but feeling sure of the correctness of his own principles he removed the cyst and the patient recovered. In another case in which a fistulous opening discharging pus existed, suppurative peritonitis was diagnosticated, but after death from septicemia, a *post-mortem* examination revealed a suppurating cyst of the ovary.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of April 4th, 1883.

Dr. J. T. Eskridge read the following paper on

Tubercular Cerebro-Spinal Meningitis.

In the year 1768, Dr. Robert Whyt, of Edinburgh, in a small brochure, described the most common form of acute hydrocephalus, directing attention to the connection between acute inflammation of the meninges of the brain and dropsy of the ventricles. (*Observations on the Dropsy in the Brain*, 8vo. Edin. 1768.) About half a century later, French anatomists showed that in the majority of the cases of Whyt's disease, the membranes of the brain themselves are the seat of tubercular deposit. (*West on the Diseases of Infancy and Childhood.*) In the year 1825, Marshall Hall described the hydrocephaloid disease. Soon to his accurate observations were added those of Gooch and Abercrombie. In this disease which is also called by Watson spurious hydrocephalus, no inflammation is supposed to exist, although more or less effusion is found in the ventricles. Fine granulations on the cerebral meninges, often unattended by inflammation appreciable to the unaided eye, had been observed for a long time, but their exact nature was unknown until the year 1830, when Papavoine showed them to be tubercles. (*Journal Hebdomadaire* for 1830, vol. vi. p. 113, quoted from West.)

The literature on the subject of tubercular cerebro-spinal meningitis is exceedingly meagre, many writers on tubercular meningitis not alluding to it. Dr. Samuel Jones Gee (Reynold's *System of Medicine*, edited by Hartshorne) states that he has several times examined the cerebro-spinal opening *in situ*, and has always found the membranes about it perfectly healthy. The spinal internal arachnoid was distended with fluid, especially around the cauda equina. He never observed any other morbid condition within the spinal canal in persons dead of tubercular meningitis. It must be remembered that he examined the cord in a minority of cases.

About the year 1869, three observers, M.M. Magnan, Hayem, and Lionville, published almost simultaneously cases of tubercular cerebro-spinal meningitis, giving as their opinion, that tubercles occurred at the same time in the membranes of the brain and cord. The special signs that they attributed to this disease were, tremblings, contractures, tossing, restlessness, tetanic seizures radiating to the neck and trunk, and temporary paralysis. Their autopsies revealed lesions of the cerebral membranes, and granulations on the surface of the pia mater and on the arachnoid. Once the dura mater was most affected and fibrinous exudation was present. (*Le Progrès Médical* for 1881, Galliaux.)

Flint (*Practice of Medicine*, fifth edition, p. 702) says: "Tuberculosis of pia mater of the spinal cord has been found in many instances, and,

probably, is the rule." He, however, does not appear to have met with a case in connection with tubercular meningitis.

Huguenin in his elaborate article on tubercular meningitis (Ziemssen's *Cyclopædia of the Practice of Medicine*, vol. xii. p. 505) disposes of this disease in the cord in one short paragraph, as follows: "Our knowledge here is quite fragmentary. It is certain that tubercles are found in the spinal cord in many cases of tuberculosis of the pia, and also that there behavior is the same as in that of the brain. The inflammatory affection of the pia seems to pass down a varying distance within the canal. There are no trustworthy statements as to the changes of tissue in the spinal cord; but without doubt many symptoms would, after a more careful investigation of this subject, appear in an entirely different light from that in which they do now.

In the *Transactions of the Pathological Society of London*, in vol. ii., Mr. Shaw reports a case of tubercles of the brain, and of the spinal marrow and its membranes. The patient was paraplegic, but conscious to the last. In vol. xxi. of the same transactions, Dr. Walter Moxon reports miliary tubercle of the spinal dura mater occurring in a case of tubercular meningitis. The patient was a girl, æt. 17 years. Duration of the disease was seventeen days.

In the *St. George's Hospital Reports* for 1879, fifty cases of general tuberculosis are analyzed. In a large number of these, brain lesions were found, but in only one instance was the spinal cord or its membranes found diseased. It is not stated in how many instances the cord was examined, but that spinal lesions were unsuccessfully sought for in cases of tubercular meningitis appears from the report. The case in which the spinal meninges were involved, occurred in a seven and a half month's child, male, æt. 4 years, of strumous diathesis and of a consumptive family. The mind was precocious and skin dry. The disease began with a cough; headache after about two weeks, when the cough almost ceased. The duration of the lung trouble was sixty-one days; of the head about forty-seven. Tubercles were found in lungs, pleura, and spleen; on the meninges of the brain and arachnoid of cord, and a nodule was seen on the under surface of the cerebellum.

H. Rendu (*Researches Cliniques et Anatomiques sur les Paralysies liées à la Méningite Tuberculeuse*, Thèse de Paris, 1873), Landouzy (*Contribution à l' étudedes Convulsions et Paralysies liées aux Méningo-encephalites fronto-pariètales*, Thèse de Paris, 1876), and Chateufort (*Contribution à l' étude de la Méningite Spinale Tuberculeuse*, Thése inaugurale de Paris, 1878, vi. 384), in the years 1873, 1876, and 1878 respectively, added contributions to our knowledge of the subject of tubercular cerebro-spinal meningitis. (*L' Union Médicale* for 1879, Debove.)

Debove (*Le Progrès Médical* for 1879) reported a case of tubercular cerebro-spinal meningitis. The patient was a man, æt. 29, suffering from

pulmonary phthisis. He suffered from severe lumbar pains and unsteadiness of gait for about two and a half months; paralysis of left leg and inability to void his urine three days; paralysis of both legs, insensibility of the left and partial insensibility of the right two days. Delirium was present for the first time about twelve hours before death.

At the autopsy tubercular granulations were found on all the membranes of the cord, most abundant on the pia mater near the anterior and posterior fissures of the cord. Congestion was intense in the lumbar region, and suppurative meningitis was most marked posteriorly in the dorsal. Tubercles were sparse and congestion slight in the cervical region. In the brain a few tubercular granulations were seen along the fissures of Sylvius, with little congestion of the meninges, without a trace of suppuration or fibrinous exudation. The cerebral substance was normal, and the ventricles did not contain an abnormal quantity of fluid.

Dr. Debove calls attention to the following facts in connection with his interesting case: First, the primary lesion was in the spine, the brain becoming secondarily affected, the reverse of what usually takes place. Second, the principal phenomena during life were due to the spinal rather than the cerebral lesion. In the first report of this case, he called it tubercular cerebro-spinal meningitis; in his second, before the same society, a few months later, tubercular spinal meningitis.

Galliaux (*Le Pcogreès Médical* for 1881), after referring to the observations and conclusions of MM. Magnan, Hayem, and Lionville, gives a short account of a case of tubercular cerebro-spinal meningitis coming under his care. The patient was a man, and like that of Debove's was 29 years old. He was brought to the hospital in a semi-conscious condition two days before his death. His wife stated that he had suffered from cough six weeks, and a few days before being brought to the hospital the cough ceased, and at the same time he began to suffer from fever, diarrhœa, and epistaxis, symptoms which his medical attendant had attributed to typhoid fever. Galliaux detected well advanced tuberculosis of the lungs. The autopsy revealed, in thorax and abdomen, tubercular infiltration of the lungs with small cavities at the apices, pleuritic adhesions, extensive ulcerations in the intestines; in the brain, a normal dura mater, a pia mater presenting adhesions to the brain substance, most marked around the tuber cinerium, and on the internal surface fine tubercular granulations, most abundant in the fissures of Sylvius. No pus nor free fibrinous exudation was found. The meninges were not thickened or much congested, presenting nearly their normal transparency. Some serous fiuid was around the tuber, and a similar fluid filled the lateral ventricles. The cerebral substance was soft, but presented no appreciable lesions; in the spinal canal, the dura mater was adherent to the visceral layer of the arachnoid, its blood-vessels were injected, evidences

of slight inflammation were present, and fine tubercular granulations were found on its internal surface.

L. Dubar's (*Méningite Cérébro-spinale Tuberculense, Bull. Sac. Anat. de Par.*, 1879, 4 s. iv. 240–243) contribution to the subject I was not able to obtain, nor were the results of the investigations of Von-Azary accessible. (Von-Azary (A.) *Beiträge zur Tuberkulose des centralen Nerven-systems der Schweine, Deutsch Ztschr. f. Thiermed.*, Leipz. 1880, vi. 254-269.)

As the following case presents many features in striking contrast to the phenomena exhibited by those already reported, I venture to record it, with as concise a history as possible, containing numerous general and surface temperature observations, in the *Transactions* of the College.

H. J., æt. sixteen months, was moderately well nourished but excitable. A superficial suppurating gland had existed on the anterior portion of the neck since the early months of infancy. The father, about thirty-five years old, a German, has a srrong and sturdy constitution, and gives an exceptionally good family history. The mother, also of German parentage, is thin, anæmic, and painfully nervous. So far as she knows; her ancestors were free from phthisis and scrofula; her father and mother, about seventy years of age each, are living and well. Some of her brothers died from pulmonary consumption, apparently induced by exposure and dissipated habits.

When about ten months old, the child had an irritative fever, apparently from teething, lasting four or five days. During the morning of April 15, 1882, about six months after suffering from the fever, it was apparently well, and spent a portion of the time in playing about the yard, but late in the afternoon, it became feverish, fretful, and refused to eat. The symptoms grew worse, and I was called at noon the next day. I found undoubted evidences of alarming illness attended by great prostration. Ten or fifteen dark blotches of extravasated blood were seen on various portions of the body; the head was somewhat retracted, and the eyes were turning from side to side; temp. 103°; pulse 150; resp. 84. The central incisor teeth only were erupted, but the gums covering the lateral incisors were swollen and painful. These were freely lanced, and the child placed in a hot bath and given potassium bromide. Grave brain trouble was suspected. At 4 p.m., pulse 180; resp. 96. A violent tetanic convulsion with occasional clonic movements took place during the examination. The face was extremely pale and the child thought to be dying. The convulsive seizure lasted in its worst form about one hour, during which time the little patient lay immersed in hot water. After the fit passed off, the left arm and leg remained rigid, the hand being shut and the foot extended until 4 a.m. the next day. The first evening of my attendance the temperature fell to 102.6°; the pulse varied from 160 to 180, and respiration from 90 to 96. The hemorrhagic extravasa-

tions under the skin disappeared when the body was immersed in warm water. Beginning on the morning of the 17th with temperature of 101.°, pulse of 160, and respiration of 84 per minute, the symptoms gradually ameliorated during that and most of the two succeeding days.

April 19. Morning, temp. 100°; pulse 118; resp. 50. It was still restless, refused to eat, cried and moaned most of the time, and slept in short naps only. 8 p.m., temp. 103.8°; pulse 135; resp. 84. The change was sudden, the child apparently being much worse. A cough beginning about this time was the only evidence of chest trouble. Twenty-four hours later the resonance of the apex of the left lung was noticed to be much impaired, but no rales could be detected. On the 20th the child slept a good portion of the time. From the 20th to 24th, took but little nourishment, vomited large quantities of phlegm, and incessant cough attended by large mucous bronchial rales, heard all over the chest, kept the little patient fretting. The temperature ranged from 101.8° to 103.5°; pulse from 112 to 140; respiration from 40 to 60.

24th. 12 a.m., temp. 98°; pulse 120; resp. 48. 6 p.m., temp. 105°; pulse 130; resp. 60. From the 24th to the 29th, the daily range of temperature was from 98° to 100°–103°, the rise being as often during the morning as the afternoon hours. The pulse varied from 130 to 140, and respiration from 68 to 70. On the 29th, when Cheyne-Stokes respiration was present, the temperature did not descend below 101°, and reached 102° at 6 p.m. In the evening Dr. Charles K. Mills saw the case with me, and agreed that it was probably tubercular meningitis of an irregular type, although the peculiarity of some of the symptons made us doubtful as to the accuracy of the diagnosis.

On the 30th the morning temperature was 98°; pulse 117; resp. 50; evening, temp. 104°; pulse 170; resp. 70. The pupils were still small, the head was again retracted, and the child kept up a pitiful moan. During the afternoon, Dr. T. G. Morton met me in consultation. He thought it was a case of tubercular meningitis. Every effort was made to keep the child nourished. In the way of medication it was given the potassium iodide and bromide, and small doses of calomel, or corrosive sublimate. When the bromide failed to relieve, twenty drops of the camphorated tincture of opium were administered every hour until quiet was produced. Cold was occasionally applied to the head, and mustard, from time to time, to the nape of the neck.

May. During the month the highest axillary temperature was found on the 11th, in the morning, when the thermometer registered 105.5°; the lowest was taken on the 1st, also in the morning, and was 95.6°. The exacerbations of fever were very irregular. On a few occasions during the month, the temperature rose to 103° to 105°, and descended normal or below the same day, but the febrile paroxysms, however, extended over a period of twenty-four to thirty-six hours, and the lull,

during which the temperature was normal or subnormal, lasted from twelve to twenty-four hours. Twice the period of heightened temperature with remissions lasted six days (from the 6th to the 11th, and the 26th to the 31st, inclusive). Only once, (on the 15th, 16, and 17th) did the temperature remain normal or below a period of three days. Throughout the month, the fever had marked remissions which were always attended by free perspiration, simulating in this respect, malarial remittent fever. The pulse and respiration were frequent, being most rapid, as a rule, when the temperature was highest. The pulse range was from 166 to 180 per minute, being 170 on one occasion, when the temperature was only 96.5°, and frequently having a rate of 150 to 160 with a normal or subnormal temperature. The frequency of the respiration varied from 36 to 86 per minute, the average being about 60. Those interested in a complete record of the temperature, pulse, and respiration, are referred to the tabular view of this case.

The posterior muscles of the neck were quite firmly contracted on the 5th, and remained so nearly two days. From the 1st to the 8th, the child was very restless and required repeated doses of camphorated tincture of opium. On the 9th, it became more quiet, but semi-choreic movements of the muscles of the neck, face, and upper extremities, when it was awake, were noticed. Those movements at that time lasted parts of two days only. During the entire day, on the 11th, the child was drowsy, and could scarcely be awakened, although it had taken nothing to induce sleep the previous two days. It would drink, however, when milk was poured into its mouth. From April 16 to May 21, the pupils had been rather small, and often very much contracted, but subsequently to the latter date they were noticed to dilate, sometimes to their full extent, just before and during a paroxysm of head pain. On the 14th, cough, which had been absent nearly two weeks, returned and was more annoying than during the first attack of pulmonary trouble. Numerous subcrepitant rales, most abundant in the upper portion, were heard in the left lung. On the 14th, seven and a half grains of quinia were given in divided doses. In this daily quantity it was continued for a period of two months, with the exception of two or three days, when it was temporarily suspended. From the 13th to the 31st, the child was very restless, keeping up an almost constant cry, and apparently suffering great pain. Opium was the only thing found to give relief. On the 18th, the choreic-like movement returned and continued a day or two. On the 19th, about the time that the lateral incisor teeth were erupted, the left ear began to discharge considerable non-offensive pus. The next day eight twenty drop doses of camphorated tincture of opium were given at hour intervals before rest was obtained. On the 22d, when the muscles of the back and right side of the neck were contracted, ten thirty drop doses of the same were given at equally short intervals; and on the

23d, fourteen and a half drachms, or nearly two ounces, of this preparation of opium were administered without entirely quieting the child. The discharge from the left ear, still yellow, was thinner and more offensive. It soon became exceedingly unpleasant; by the last of the month the ear ceased to discharge. Instead of the camphorated tincture of opium morphia was subsequently employed, and gradually increased; the quantity within two weeks necessary to quiet the child during some of the nights, being two and a half grains. During the afternoon of the 31st, the little fellow was bright, free from pain, and quite playful.

JUNE AND JULY. The temperature during those months ran a less variable course, reaching 104.1° only once (June 9), and never descending more than a degree and a half below the normal. The average temperature for the two months was about 99°. The pulse range was greater, the frequency being 180 on a few occasions, and once (July 8) as low as 86 per minute. When the pulse was slow it became intermittent.

JUNE 5. The head was again retracted, large doses of morphia being necessary to afford relief. About that time the child became very passionate, screaming, and striking at every one (except its mother) who came near it. It was conscious and rational, and would promptly answer in the affirmative when asked if it wished to be taken out in its coach.

8th. The left ear was again discharging non-offensive, thick, yellow pus. A diffuse bronchitis with numerous mucous rales, causing great oppression in breathing, set in about that time and lasted three or four days.

On the evening of the 11th of June, with widely dilated pupils, the child began to scream, and continued to cry vigorously, manifesting other expressions of pain four or five hours, notwithstanding four doses of one-third of a grain of morphia each were administered at short intervals. The next morning it seemed to be free from pain, but was not sleeping continuously.

14th. Both ears were discharging quantities of yellow non-offensive pus. No teeth were about to be erupted, the gums not being swollen. From the first to the fourteenth of June, the little sufferer, when not under the influence of morphia, was almost constantly screaming.

About the middle of June, it became quiet and ceased to cry except when disturbed. During the latter half of June, and the entire month of July, no anodyne was required. When the administration of large quantities of morphia were necessary the axillary temperature was only exceptionally above 99°.

19th. A diarrhœa began and lasted a few days, the food passing through the bowels undigested.

JULY 1. I began to register the surface temperature of the head, not having ventured before because I feared the irritability and restlessness

of the child would endanger the safety of the thermometers (two thermometers always being used at the same time).

On the 8th, the pulse was slow and intermittent, the stomach irritable, and the bowels loose. It was noted that the child was decidedly worse every second day, being feverish some time during the twenty-four hours on alternate days. The fever always passed off by free perspiration. During the month the little patient seemed to improve, and it was taken into the open air every clear day, and sometimes into Fairmount Park during the early morning hours.

AUGUST. From the 1st to the 15th, the child was quiet, and did not fret when left undisturbed, the temperature ranging from 97.5° to 99.5°.

On the afternoon of the 16th, it suddenly became convulsed, was rigid, and remained in this condition about ten minutes.

18th. There was some twitching of the muscles of the extremities, especially of the hands and feeet. The breathing was the Cheyne-Stokes variety. One forty-eighth of a grain of morphia was required to relieve pain, it being the first day that an anodyne had been necessary since June 1st, a little more than two months. Increasing quantities of morphia were required almost daily the remainder of the month, the child being feverish and restless every afternoon, and frequently screaming violently from head pain. The range of temperature for the last eight or ten days of the month was from 100° to 102.5°.

On the 26th, and 27th, Cheyne-Stokes respiration, minus the intermission, was present; and on the 28th, typical Cheyne-Stokes breathing lasting one day only.

SEPTEMBER. My notes of the case for the 1st, 2nd, and as late as 5 P.M. of the 3rd instant, show a normal axillary temperature, and fairly good pulse and respiration, but the surface temperatures of the head at the 4 P.M. examination of the 3rd were 1° higher than the axillary. After having been comparatively quiet for nearly two months, and resting well during the previous two days, it began to cry with apparent head-pain. The pupils were widely dilated. It screamed furiously, and almost immediately, while the thermometers were still on the head, became convulsed. At first every muscle appeared to be rigid, the posterior muscles of the neck and those of the back being most contracted, and producing an extreme condition of opisthotonus. The eyes rolled from side to side, and a few spasmodic movements of the muscles of the body took place. The spasmodic seizure lasted about half an hour, but the leg muscles remained rigid much longer. Respirations were 68 and pulse 130. At 9 A.M. the next day it had another convulsion, which soon passed off, leaving a number of muscles contracted. At 10 A.M., I found the muscles of the back of the neck, and the flexors of the legs and arms, and the extensors of the feet, firmly contracted. Twitching of the facial muscles took place occasionally, each spasmodic contraction of

these muscles being attended by a scream from the child indicative of of great suffering. Temp. 103.5°; pulse 148; resp. 16. The head temperatures were a half degree below the axillary. The axillary and head temperatures continued to rise until the former reached 104° and the latter 103°. The condition of the muscles remained nearly the same during the day, except those connected with the eyeballs, which became more affected, and kept up a continuous nystagmus. The respirations became very slow and irregular, the pause often being from ten to fifteen seconds in length. 10 p.m., temp. 103.5°; pulse 140; resp. 8. Numerous bronchial rales were heard throughout the chest. During the next two days the temperature varied from 102.5° to 103.5; pulse from 140 to 150, and respiration from 28 to 34. The spasmodic movement of the facial muscles ceased, the back muscles of the neck and the flexors of the arms relaxed, but the adductors of the legs and the extensors of the feet remained contracted, and so continued gradually increasing until the death of the child, nearly three months later. The following week the temperature ranged from 97 to 100.5°, the average being about 99°. The axillary temperature was frequently lower than the surface temperature of the head. The breathing was of the Cheyne-Stokes variety once or twice, and on a few occasions it was slow and irregular. The head was retracted about one-half the time, that condition always being associated with symptoms of pain, irritability, and heightened general and surface temperatures. Small doses of morphia (one-fourth to one-eighth of a grain) were sufficient to quiet the child.

13th. 10 a.m., temp. 93.8°; pulse 96; resp. 14. The head temperatures were about 5° higher than the axillary. After that date, to maintain the body heat, it was necessarry to have bottles filled with hot water, and to keep them constantly applied to the extremities. The remainder of the month the temperature did not descend below 95°. The deformity of the legs and feet became more marked. The legs were forcibly crossed near the body and feet were extremely inverted and extended. A straight line drawn from the anterior surface of the knee to the upper surface of the tarso-phalangeal joint of the great toe passed through the instep, and one drawn from the popliteal space to the under surface of the same joint of the toe just touched the under surface of the heel. The child was peevish and fretful most of the time. An afternoon rise of temperature was the rule.

On the 28th, the biceps muscle of the right arm was noticed to be contracted. The next day it was more flexed, and the pulse was intermittent. The head became so much retracted about the latter part of the month that deglutition was very difficult. To relieve that condition an issue was established by means of Vienna paste over the upper portion of the cervical spine. After this the head was rarely retracted, and then only to a slight degree.

October. The general condition of the child continued about the same, the right arm still being flexed. On the 6th, the left arm was first noticed to be affected, the flexor muscles of the forearm being contracted, and the hand deflected to the ulnar side. From that date the arm, like the leg muscles, continued to become more firmly contracted. The right arm was drawn in front of the chest and firmly held against it, the forearm being flexed so that the closed fist was under the chin, making it necessary to cover the hand with cotton to prevent its interfering with respiration and deglutition. The biceps muscle of the left arm was never firmly contracted, the flexors of the left forearm being mainly affected. The left hand was forcibly flexed upon the forearm, and turned to the ulnar side, the finger-nails striking the first phalanx of the thumb. The palm of each hand was padded with cotton to prevent injury by the nails. During the month the axillary temperature varied from 98° to 101.2°, the average being nearly 100°. The head temperatures were a little lower than the axillary. On the 10th, both eyes were turned to the left, and occasionally moved spasmodically downward and far over toward the left side. The eyes remained deflected toward this side, but at times they were nearly straight. Spasmodic movements of the eyes in various directions were noticed when the child suffered much pain. More or less morphia, sometimes a grain in twenty-four hours, was required the greater portion of the time. From the 18th to the 29th, respiration was of the Cheyne-Stokes variety, child being restless and suffering pain most of the time. Occasional spasmodic twitchings of various muscles of the body were noticed, those of the face and arms being most affected. The clonic, spasmodic movements seemed to be caused by increased cerebral irritation, and were almost invariably followed by screams from the little suffer. At those times the permanent contractures were worse. On the 12th, two grains of morphia were given before pain was relieved. The child had been noticed to stare meaninglessly for several days, but it was not found to be entirely blind until the 29th. At that time an ophthalmoscopic examination of the fundus of each eye showed both optic disks to be very white, and apparently slightly swollen.

November. The first twenty days of the month the child was comparatively quiet, ate well, seemed to gain some flesh, and was generally quiet without morphia. During that period it was most irritable the 3d and 11th, but it did not have much rise of temperature on those days. The child was worse every second day.

21st and 22d. There were numerous bronchial rales, but no fever, the breathing seemed to be a little more labored than usual.

23d. Temp. 98°; pulse 108; resp. 28. Large bronchial and subcrepitant rales abundant.

24th. 10 a.m., temp. 96.7°; pulse 130; resp. 40. 6 p.m., temp.

99.6°; pulse 140; resp. 52. Impaired resonance posteriorly; crepitant and subcrepitant rales were observed.

25th. 10 a.m., temp. 101°; pulse 160; resp. 80. Marked dullness was found over the lower portion of both lungs posteriorly. The child took no notice of anything, but swallowed when liquid food was placed in the mouth. 6 p.m., temp. 101.5°; pulse 165; resp. 92. The respiration was ascending and descending, but no intermissions, as in the Cheyne-Stokes type, occurred.

26. It died at 2 a.m., being able to swallow five minutes before death; no convulsions occurred. The breathing became very slow a short time before life was extinct.

Sectio cadaveris was made twelve hours after death by Drs. C. K. Mills, I. E. Roberts, and myself.

Rigor mortis was just beginning; skin was rough, wrinkled, and very thin. There was great emaciation, the subcutaneous fat having been entirely absorbed. When the child was one year old it weighed twenty-five pounds, but after death, the age being about two years, its weight was only eleven pounds, although its height was probably greater than that of most children of the same age.

Head.—Circumference twenty inches; transverse arch (from mastoid to mastoid) fourteen inches; right half of arch to sagittal suture six and seven-eighths inches; left half seven and one-eighth inches. The head did not seem greatly enlarged. All the bony sutures had closed externally except at the junction of the coronal and sagittal. The skullcap was so thin and yielding, bending like bonnet-board before the saw, that much care had to be exercised in its removal to prevent injuring the brain or soft coverings. The dura matter was not more adherent to the bone than is usual in children of one or two years of age, except along the line of the sagittal suture, where it became necessary to sever its connections with the bone by the use of considerable force, aided by the knife. After the skullcap was removed, all the sutures were found to be closed internally. The surface internal of the bony cap was smooth, the bones being very transparent, and measuring in the temporal regions from one-fortieth to one-thirty-secondth of an inch in thickness, and in other situations from one-twelfth to one-eighth of an inch. The dura mater was thin and pale, and its sinuses were nearly empty, containing no clots, and but little blood. The pia mater on the convexity of the brain was so attenuated and transparent that it was difficult to distinguish its presence. The various fissures, primary and secondary, could be traced without removing this membrane. The pia mater over the orbital surfaces of the frontal, the basal surfaces of the temporal and occipital lobes presented the same attenuated, transparent appearance seen on the convexity. The membrane covering the anterior and posterior subarachnoidian spaces on first exposure seemed to be opaque, but on cutting it a serous fluid es-

caped, leaving it of the usual appearance. A few millimetres to the left of the optic chiasm, two yellowish-white spots about one-eighth of an inch in their greatest dimensions, were seen in the substance of the pia mater.

The convex surfaces of both hemispheres of the brain on palpation gave decided fluctuation. On cutting into the lateral ventricles, they were found filled with a colorless watery fluid. The bodies and horns of these ventricles were enormously dilated. The foramen of Monro, the third and fourth ventricles, and the Sylvian aqueduct were enlarged to about two or three times their normal dimensions. On examining the walls of the lateral ventricles and their much dilated horns, prominent veins could be seen everywhere forming beautiful arborescent appearances. The veins of the intra-ventricular striate bodies, the veins of the choroid plexuses, and the veins of Galen themselves, were enlarged and prominent. The ventricular fluid measuring fifteen ounces. Measuring from the anterior extremity of the anterior horn to the posterior extremity of the posterior horn, the greatest length of each lateral ventricle was six and a quarter inches. Both ventricles appeared to be dilated equally. The thickness of the brain substance constituting the walls of the lateral ventricles was measured at several points. It was thinnest in the region bounding the dilated posterior horn, within and below, where it measured about one-sixth of an inch. Sections through the gray and white matters showed no punctæ vasculosæ, the brain substance throughout being markedly bloodless. It was firm and cut cleanly, not adhering to the knife.

The cervical and upper dorsal portions of the spinal cord and its membranes presented nothing abnormal on macroscopic examination.

Thorax.—No pleuritic adhesions or effusion. The smaller bronchial tubes were nearly filled with muco-pus. The lower and posterior portions of the lungs were œdematous and congested. The apices of the lungs were firmer than normal, and in the right apex a small cicatrix and several little nodules. The heart was very small, but apparently normal. The abdominal organs were not examined.

Parts of the brain and the cervical portion of the spinal cord and their membranes, and a small piece of the apex of the right lung, were properly hardened and sent to Dr. L. Brewer Hall, a practical microscopist, for examination. The results of his examinations he gives as follows:—

"Sections of the spinal cord and membranes show oval masses of rounded cells along the vessels of the dura mater, lying chiefly outside their walls. In some places the coats of the vessels are thickened; the nervous tissue appears normal. Similar appearances are occasionally seen in the membranes of the brain; many sections, however, show nothing abnormal. In the apex of the lung there are minute inflamma-

tory spots, visible in some of the sections only. Parts of these consist of rounded cells about and within a bronchus, but others are surrounding bloodvessels and not encroaching upon the calibres.

"The pathological condition is tubercle, chiefly of the membranes of the spinal cord, less abundant in the meninges of the brain, and rare and small, though present, in the lung."

In the history of the case which I have given in detail to-night, periodicity of temperature, attended by numerous exaggerated symptoms of brain disturbance, was well marked. During these periods, in which the case ran a less acute course, a slight exacerbation of fever was noticed nearly every alternate day. After the first few weeks of the disease, when the fever began to reach its highest points, the paroxysms of fever, headache, and restlessness varied from a few hours to one or two days. The fever invariably passed off by free perspiration. On some days the fever was of the remittent type, and on others, of the intermittent. I have frequently observed a striking similarity between the temperature variations of malarial fevers and those due to brain diseases; but in no instance have I seen the temperature of the latter diseases resemble that of the former when the membranes or cortical substance of the brain was uninvolved by disease. Fevers of cerebral origin differ from those of malarial poisoning, in that the paroxysms of the former are less regular in their occurrence and duration, and are not so easily prevented by large doses of quinine, although in the case reported in this paper, large daily quantities of quinine seemed to prevent excessive rise of temperature, and apparently lessened the frequency of paroxysms.

During the first few days of the child's sickness, the diagnosis was between spurious hydrocephalus, acute meningitis, tubercular meningitis, and sporadic cerebro-spinal meningitis; later between the last two and chronic hydrocephalus. A careful study of the morbid anatomy of this case, however, discovers no lesion that is not found in one or more of the above diseases, yet the clinical history, when taken in connection with the varying records given by the body and head temperatures, shows the disease to be possessed of a certain individuality, which, with a number of carefully studied histories, we might be able to recognize.

The quantites of morphia, two to three grains in twenty-four hours, which were given to a child less than two years old without producing death, seem almost incredible. At first, twenty drops of camphorated tincture of opium were sufficient to quiet the child for a short time, but this preparation of opium was gradually increased until about two ounces were necessary for twenty-four hours. In the same way morphia was increased as toleration was established, the maximum quantity only being reached after regularly giving the drug a number of weeks. After having discontinued the use of morphia two months, the return of head-pain compelled me to again resort to it. This time, also, small doses were at

first sufficient to quiet the child, but in the course of a few weeks one-third to one-half grain doses were required. While large doses of opium were being administered, neither diarrhœa nor vomiting was present.

The extraordinary duration of the tubercular disease of the cerebro-spinal membranes, in this case, extending over a period of nearly eight months, simulated rare cases of sporadic cerebro-spinal meningitis, which may, also, after further investigation, be found to be tubercular in their nature. Ordinary cases of tubercular meningitis run their course in from two to four weeks. A few have lasted about ten weeks. There is, however, on record, one rare case of tuberculosis of the cerebral membranes (*St. George's Hospital Reports* for 1879), in which the head symptoms were of twelve months' duration. The patient was a man thirty-five years old, admitted into the hospital a few hours before his death. The man and his wife stated that the affection had begun suddenly twelve months before, with embarrassment of speech and deglutition. Failure of the sight, with severe cough and wasting were of six month's date. "On admission, the symptoms were general weakness of the limbs, the arms in particular moving with jerking action, and requiring concentration of thought to influence them at all; loss of power of deglutition, during attempts at which the head was turned around to the right; inability to protrude the tongue; complete anæsthesia of the soft palate, indistinctness of speech, the vocal cords seeming partially paralyzed; dulness of vision, ptosis, frowning of the forehead, sluggishnes of the pupils and drowsiness; but no derangement of mind." The post-mortem appearances were, "A few tubercles in the arachnoid on the convexity of the brain; a little lymph in the interpeduncular space, without tubercle; the medulla and its nerves normal; left kidney small." The case I have just quoted, when taken in connection with the one reported in this paper, is particularly interesting on account of its long duration, decided motor disturbance of cerebral origin, and the slight lesion found in the arachnoid of the brain, the spinal cord apparently being uninvolved. The long duration of the case I have reported to-night may, I think, have been due to tubercles being very sparsely scattered on the membranes of the brain and the cord, without any other organ becoming sufficiently affected to endanger life.

In cases of tubercular cerebro-spinal meningitis are the paralysis and rigidity of spinal or cerebral origin? H. Rendu (Debove, *Le Progrès Medical* for 1879), says, "I think I am authorized in concluding that the existence of tubercular granulations on the spinal meninges have only a purely anatomical interest, and that their value, in a clinical point of view, has been, perhaps, exaggerated."

In Debove's case (*Ibid.*), the chief symptoms were due to the spinal lesions, which were most marked in the dorsal and lumber regions. And in the one related by Chateaufort (*Ibid.*), the spinal symptoms were first,

and in the fore-front. The patient was suffering from advanced pulmonary tuberculosis. A few days before his death he felt a sharp pain in the spine radiating to the lower limbs. Marked rigidity of the trunk was present, and finally delirium and paralysis. In the case of the child attended by me, the lesions of the spinal membranes were greater than those found in the cerebral meninges.

Rendu (A. McL. Hamilton, *Nervous Diseases*, 1881; *Review in Gaz. des Hopitaux*, January 15, 1873) affirms that whenever there is paralysis of permanent form there must be some obliteration from fibrinous exudation and consequent softening, and he does not believe that scattered granulations or ventricular effusion are alone sufficient for its causation." Ventricular effusion, as seen in chronic hydrocephalus, especially, is not usually attended by rigidity of the muscles of the extremities. The pathological lesions demonstrated by different observers of tuberculosis of the nervous centres abundantly prove that paralysis or contractions of a permanent character may result from lesions in the spinal cord or brain, or in both. In my case there was no paralysis, although a large quantity of fluid filled and distended the ventricles, probably because, as contended for by Rendu, no lesions of softening existed. The rigidity in this case may be accounted for by the comparatively sudden ventricular effusion, which apparently took place a few months before the child's death; the brain being thus crippled, its inhibitory influence over the cord was lessened, and the latter nerve centre kept up a constant muscular contraction. What I think is a more plausible explanation of the condition, is found in the presence of scattered tubercle, attended by inflammation, in the membranes of the brain and cord. Tubercles were few in both situations, but most abundant in the membranes of the medulla, the very centre of reflex actions.

The macroscopical appearances of the brain and cord and their membranes were those of great anæmia of the parts. Nothing suggestive of tubercle or even inflammation, save two small yellowish nodules at the left of the optic chiasm, was seen. Many of the microscopical sections, also, showed neither tubercular nor inflammatory lesions. It is evident from a careful study of this case that examinations must be most careful and thorough before giving a negative opinion in regard to the presence or absence of tubercles or of inflammation of the membranes of the brain and cord.

The pulse frequency of the case reported to-night, like that of tubercular meningitis, divides the disease into three unequal stages. The first stage was of five months' duration, during which the pulse was very rapid, being, on the average, about 130 to 135 per minute, but unfrequently reaching 160 to 170, and on a few occasions 180. The second stage was one month long, the pulse ranging from 76 to 120, the average being about 100. The last stage extended over a period of about one and a

half months, the pulse being again rather rapid, from 104 to 148, the average being about 130. During the early part of the disease respiration was most rapid when the pulse was most frequent; but later, slow respiration (8 or 10 per minute) was accompanied by rapid pulse (140 to 144).

Irregularity and sudden changes were well shown by the axillary thermometric records. On May 1, the temperature fell from 104° to 95.6°, or 8.4° in twelve hours; and three days later, from 105° to 96.5°, or 8.5° in about the same length of time. Diurnal variations of temperature from 4° to 6° were common. The temperatures in each axilla were compared sixty times; five of these the left axillary heat exceeded the right from .1° to 1.8°, the average difference being .5°; the temperatures were equal eight times, showing the right axilla to have been warmer than the left forty-seven times, the difference varying from .1° to 1.8°, the average being only .3°. Part of the variation, I think, may be accounted for by the difficulty we encounter in keeping children quiet while registering their temperatures.

Cerebral Thermometry.—From my paper which I read before the College, May 3, 1882 (Report of Three Cases of Abscess of the Brain), I quote the following: "Dr. Gray found average normal temperatures of the stations on the side of the head to be for the frontal .65° F., for the parietal .86°F., for the occipital .72° F., higher than those of the corresponding stations on the right. He gave as the normal temperature of the right frontal station 93.71° F., of the left 94.36° F., of the right parietal 93.59°F,, of the left 94.44°F.; of the right occipital 91.94°F., of the left 92.66° F. Variations of more than 1.5° he considered suspicious of disease at that point, and of more than 2° strong evidence of a pathological condition."

Dr. J. S. Lombard published in book form, in 1879, the results of 60,000 observations on the regional temperature of the head made by means the thermo-electric apparatus. (*Experimental Researches on the Regional Temperature of the Head, etc.*, by J. S. Lombard, M.D.) His averages of temperatures of the different regions of the head are—

"Average Temperature.

	Anterior region.	Middle region.	Posterior region.
Right side,	92.942° F.	92.073° F.	92.343° F.
Left side,	92·825	92.114	92.267
Both sides,	92.883	92.093	92.309"

He says that "higher values, especially for the anterior, are more frequently met with in ordinary examinations; but it is extremely difficult to arrive at satisfactory conclusions as to average absolute temperature from observations made upon individuals while engaged in the ordinary avocations of life, the results thus obtained being very variable. Under such circumstances, a temperature of 96.36° F. for the anterior region;

one of 94.1° F. for the middle region, and one of 93.56° F. for the posterior region, would probably represent more correctly, in the majority of cases, the highest absolute temperatures."

It will be seen by Lombard's conclusions that the temperatures of the anterior and posterior regions are higher, and that of the middle region on the right than on the left side of the head. In a later work by the same author (*Experimental Researches on some points Relating to the Normal Temperature of the Head*, by J. S. Lombard, M. D., 1880), it is stated that—"It was found in these experiments, among the results, that every one of the small divisions of the surface of the head might be hotter on the right side or on the left side in turn, and also that many of them showed at times equality of temperature of the two sides."

In numerous observations made by myself on cerebral temperature of persons in health, and of persons suffering from general febrile conditions, the right side of the head has been found, in many instances, slightly warmer than the left. When surface thermometers are employed to register the heat of the head in disease, I think, if we take the "highest absolute average temperatures" of Lombard for comparison, we shall be less likely to come to erroneous conclusions. If we take, then, the comparatively high temperatures, 95.36° F., 74.1° F., and 93.56° F., for the normal heat of the anterior, middle, and posterior regions of the head respectively, we shall find, when we compare them with the results of the numerous temperature observations made on the patient whose case is reported in this paper, that much of interest, and, probably, of clinical value, may be derived by a careful study of cerebral thermometry in these cases.

The results of the local thermometric records in this case may be thus summed up:—

The surface temperatures of the head and of the upper posterior cervical region were registered on ninety-seven different occasions, during which four hundred and eleven surface temperature observations were made on these parts. The cerebral temperatures exceeded the axillary forty-six times; that of the axilla was higher than the head temperatures forty-seven times; and the temperatures of the head and axilla were equal four times.

Once the temperatures in the axilla and over the upper cervical region were equal; four times the temperature of the latter region fell below that of the axilla, varying from .1° to 1°; twenty-four times the heat of the upper cervical region exceeded that of the axilla, it having been on one occasion as much as 3.4° above it. The temperature in the upper cervical region was usually greater than that of the head, it having been higher nineteen times out of twenty-nine.

Of the forty-six times that the head temperature was greater than that of the axillary, the heat of the latter region was subnormal sixteen, nor-

mal eleven, and above normal nineteen times. Of the forty-seven times that axillary temperature exceeded that of the head, the thermometer in the axilla registered subnormal seven, normal ten, and above normal thirty times.

The lowest head temperature found was 95.8°, the axillary heat at that time being 97.8°. The highest head temperature registered was 103.5°, the axillary being 104°. The lowest axillary temperature recorded was 93.8°, the cerebral temperature, at the same time, standing at 98°. The highest temperature found in the axilla, at the time of registering the head temperatures, was 104°, the surface thermometer on the head at the same time rose to 103.5°. Once the head temperaturature was 4.2° greater than the axillary, but the heat of the axilla never exceeded that of the head more than 2°.

The average temperatures of the axilla, of the various regions of the head, and of the upper cervical region, are as follows:—

Parietal station.	Rolandic station.	Posterior frontal station.	Superior frontal station.	Occipital station.
Right side 99.24°	Right side 99.27°	Right side 98.95°	Right side 98.65°	Right side 98.54°
Left " 99.24°	Left " 99.22°	Left " 98.80°	Left " 98.75°	Left " 98.28°

Middle frontal station 98.08°. Middle occipital 98.39°. Upper cervical region 98.41°. (The average temperature of the upper cervical region was slightly above those of the head and axilla, but the table shows a different average, the discrepancy appearing because the temperature was registered a limited number of times over the upper cervical region.) Axillary region 98.89°.

The head temperatures at no time descended to the normal, although the axillary temperature was either normal or subnormal forty-five times out of ninety-seven comparative examinations. The temperatures of each side of the head were nearly equal. Corresponding regions of the two sides rarely varied more than a fraction of a degree Fahr. The parietal stations were the warmest, the middle frontal station, only a little below the middle occipital, was the coolest.

If the results of the cerebral temperature observations of this case are compared with the observations made by Dr. Mary Putnam-Jacobi (*The Journal of Mental and Nervous Diseases*, Jan. 1880), on a case of suppurative tubercular meningo-cephalitis, a striking difference in the height of the temperature will be found, partially confirming the conclusions that I had almost arrived at from numerous observations on cerebral thermometry, viz., that brain lesions accompanied by congestion or inflammation are attended by higher head temperature before than after suppuration intervenes.

The following conclusions may be drawn from the contents of the paper:

1. Tubercles occur in the membranes of the brain and cord, but

they are more frequently found in the former than in the latter situation.

2. Tubercular deposit may first take place in the meninges of the cord and then extend to those of brain, although the reverse is the rule.

3. Tuberculosis of the cord, contrary to the views of Rendu, has more than an anatomical interest.

4. Tubercular cerebro-spinal meningitis gives rise to special symptoms, and by a careful analysis of a number of cases, it may be recognized.

5. It is probable that many cases of so-called sporadic cerebro-spinal meningitis, that have a duration of several months and then prove fatal, are tubercular in character.

6. Paralysis or contractions may be due to brain or spinal lesions, or to both.

7. When cerebral fever simulates the periodic manifestations of malaria, the lesion is probably in the membranes or cortical substance of the brain, or in such a position as to exert pressure upon these structures.

8. Ventricular effusion probably does not give rise to paralysis or contractions; the former motor disturbance in these cases being due to softening of motor zones, and the latter to irritation of the meninges of the brain and cord.

9. Repeated microscopical sections may have to be made in certain cases of tuberculosis of the meninges before the nature of the disease is detected.

10. Right or left side of the head may, in turn, be the warmest in health.

11. When surface thermometers are used to register the cerebral temperature in disease, the normal averages should be taken to be 1° to 1.5° higher than those given by Gray and others.

12. The head temperature in disease of the brain may equal or exceed the heat of the axilla for a length of time.

13. In cerebral lesions, the temperature of the head is not marked by those sudden variations manifested by the axillary temperature in these cases.

14. Variations of head temperature in diseases of the brain take place comparatively slowly. The tendency of the heat of the head to remain permanently above the normal, while that of the axilla is normal or several degrees below, is the strongest evidence of organic disease.

15. The thermometer and the microscope in the case reported agreed in locating the greatest inflammatory trouble in the upper cervical portion of the cord.

16. Brain lesions attended by congestion or inflammation have a

higher local temperature than suppuration going on within the cranial cavity.

DISCUSSION.

Dr. Roberts Bartholow said: Since you have called on me, Mr. President, I will make some remarks on the very elaborate report which we have just heard. The impression which the clinical history makes on me is that the case, if tubercular, is one rather of general tuberculosis than of tubercular cerebro-spinal meningitis. It may be objected to this view that in every case of tubercular meningitis there is more or less generalized tubercular deposit. It seems to me, however, hardly logical to place so much emphasis on the spinal affection. In most cases of unquestionable tubercular meningitis the principal seat of tubercular de posit is at the base, hence the term *basilar meningitis*, parts in immediate connection with the spinal meninges. It is the more philosophical, therefore, it seems to me, to regard such cases as examples of general tuberculosis; now one set of organs, now another set, being the points selected for a special tubercular deposit. I do not, therefore, believe in the existence of any cases of tubercular cerebral meningitis, or spinal meningitis, *per se*, but in a general tuberculosis, with special implication of certain organs. Under such circumstances the symptomatology will vary with the particular functions of organs the most involved.

As regards the cerebral thermometry on which the essayist has much dilated, I beg to say a word or two. Up to the present cerebral temperature changes have not afforded us much information. As you are well aware, Mr. President, Lombard achieved but trifling results in his study of cerebral temperatures, although he employed the most elaborate instruments of precision now available for the purpose. Indeed it is now well understood that the temperature of the scalp affords no certain indication, if any indication whatever, of the cerebral temperature. A few years ago a physician of New York, Dr. Amidon, received a prize, and attracted no little attention for an essay, in which he attempted to show that certain motor areas in the brain could be mapped out by the temperature changes in the scalp, induced by active exercise of the muscles in anatomical relation with these motor areas. But it was soon ascertained that the temperature changes were limited to the scalp, and that the "willed movements" do not, so far as at present known, so raise the temperature of the motor cortical centres as to change the temperature of the scalp. In fact, it is now known that the temperature of distant parts is influenced by slight excitation of the surface. Thus, Strumpf, of Dusseldorf, has shown that faradic stimulation of the skin of one member effects the heat of another member. There are numerous examples of the same kind. In this way the influence of muscular action on the temperature of the scalp is explained. We cannot, therefore, formulate conclusions in regard to the condition of the brain from observations on the heat of the

scalp. The whole subject is still *sub judice*. Hence, I think it is very unsafe to draw conclusions from cerebral thermometry in the present state of our knowledge.

Dr. Da Costa remarked that, notwithstanding the elaborate and able report of the case, he had some doubts with reference to its character. The sudden beginning was unlike that of tubercular meningitis, rather that of those instances of cerebro-spinal fever which begin acutely and may become chronic. In support of this view there was an eruption of an ecchymotic kind, in the first twenty-four hours, such as occurs in cerebro-spinal fever; there is no eruption in tubercular meningitis. Again, there was no very positive evidence of tubercle in the lung, and he thought it unlikely that a case of tubercular meningitis should have existed for months, affecting the brain and cord, and no decided tubercles in the lungs be found.

Dr. Chas. K. Mills referred to the fact that in a number of cases of tubercular meningitis, some in children and some in adults, some general and some localized, he had observed eruptions differing in character; sometimes erythematous, sometimes vesicular, sometimes ecchymotic, and probably, in the latter case, due to extreme vaso-motor paresis.

He alluded also to four cases of tubercular meningitis seen with Drs. Franklin and Ott. In three of these gross appearances were present; in the fourth the appearances were similar to those exhibited by Dr. Eskridge's patient. No tubercular masses were visible anywhere, either at base or convexity, and yet the microscope revealed miliary tubercles in great abundance. These observations show the importance of not concluding that a case is non-tubercular simply from macroscopic examination. Probably many of the statements of the older observers are not to be relied upon in this respect.

Dr. Eskridge, in closing the discussion, said that it was probably exceedingly rare to have tubercular inflammation of the membranes of the brain or cord without tubercles occurring in other portions of the body. In pulmonary tuberculosis it was common for other organs than the lungs to be attacked. He was inclined to think that if, in certain cases, we follow the custom of locating the disease in one or more organs, those should be selected which were most early and prominently affected. In the case under consideration the early symptoms, and, in fact, those of any prominence at all throughout the disease, were due to the cerebro-spinal lesions. The point was well taken by the first speaker, as the microscope shows that most cases of so-called local tuberculosis are examples of general tubercular affections. The same speaker was also justified in questioning the claims that had been made by some observers for cerebral thermometry. Dr. Eskridge was not yet satisfied that surface thermometers would enable us to locate lesions in different portions of the brain with sufficient accuracy for general diagnostic or therapeutic

purposes. He desired to call special attention to one point in connection with his observations on the surface temperature of the head in this and other cases, viz., that a sustained high head temperature extending over a considerable period, while the axillary heat was normal or below, pointed to organic lesion of the brain or its membranes. Again, in brain diseases, the cephalic temperature is less variable than the axillary heat in the same cases. The sudden beginning and long duration of the case the history of which he had given in detail, and the presence in it of an early eruption, was thought by the second speaker to point to sporadic cerebro-spinal meningitis rather than to the tubercular form of meningeal disease. Cases of tubercular meningitis without prodromata were the exception, but they did occur. One or two of the three cases referred to by Dr. Mills, and reported in a joint paper by himself and Dr. Ott (*Philadelphia Med. and Surg. Reporter*, July 3, 1881), were ushered in by convulsions, the previous health of the children having been good. Dr. Gee (Reynold's System of Medicine) says "that out of twenty-six cases of primary tubercular meningitis (the diagnosis having been confirmed by a postmortem examination in all) there were only two in which premonitory symptoms had not been noticed." The long duration (nearly eight months) of the present case would class it with the curiosities of medical literature, but it was not without a parallel, for Dr. E. had quoted a case in the early part of his paper, from the St. George's Hospital Reports for 1879, in which the meningeal symptoms extended over a period of twelve months. Other cases of tubercular meningitis that have lasted about ten weeks have been reported. The eruption referred to in his case, and thought by some to be of considerable diagnostic value in this particular instance, looked like blood extravasated under the skin, but it disappeared as soon as the child was put in a warm bath, an hour or two after he first saw it. It did not again make its appearance.

The absence of macroscopical appearances of inflammation militated, to his mind, very strongly against the supposition of the disease having been sporadic cerebro-spinal inflammation. So far as he knew, if the patient lived a few days after being seized with the last-named disease, inflammatory deposits were always apparent to the unaided eye. If it be argued that the present case lasted so long that the exudate was absorbed, he would like to know the cause of death. Irritation was increasing, as shown by muscular contractions, etc., during the last two months of the little fellow's illness, yet at the autopsy no visible exudation was present. In rare cases of tubercular meningitis the macroscopical appearances of inflammation have not been well marked. In one of the cases reported by Drs. Mills and Ott no tubercles were seen. In one of tubercular cerebro-spinal meningitis, reported by Galliaux, the "membranes were not thickened or much congested, presenting nearly their normal appearance." At the autopsy of Dr. Eskridge's case the presence of tubercles

was not suspected by Dr. Mills or himself, and inflammation, which, during life, was thought to exist, could not be detected by any exudate. Hardened portions of the brain and cord and their membranes, and of the lung, were given to an expert microscopist who knew nothing of the history of the little patient, and he was asked to decide whether inflammation had existed. He found, as stated in his report, tubercles in portions of all the organs examined. If it were not for the microscopic revelations which Dr. Eskridge did not feel inclined to dispute, the case he had reported to the College would have to be considered one of chronic cerebro-spinal meningitis minus appreciable exudation.

Abstracts and Selections.

I.—OBSTETRIC.

Dissecting Metritis.—By Henry J. Garrigues, M.D., *in the Archives of Medicine.*—At the meeting of the Pathological Society, held Sept. 13, 1882, I presented a specimen of dissecting metritis, and mentioned that a similar loose body had been extracted from the womb of a patient under another physician's care, in this city. The disease would seem to be exceedingly rare, since no mention is made of it in any book, and since, among men with very large experience as curators, I have been unable to find one who has found such loose pieces undermined and cast off from the uterine wall. Even so special a work as Klob's "Morbid Anatomy of the Female Genitals" does not refer to the possibility of such an occurrence. All I have found in literature about it are two cases reported by the Russian physician Süromiatnikow.

One would then incline to think that dissecting metritis is a very rare disease; and yet I have five new cases to report, all having occurred in less than five months, in the Maternity Hospital. Reserving number one for the previously reported case, I designate the next as

Case 2.—Sarah W., æt. eighteen, American, primipara. Delivered October 12, 1882, with forceps, by an assistant, which operation resulted in a laceration of the perineum, extending through the sphincter into the anus. The wound was closed with three silk sutures, but did not unite. On the thirteenth day the granulating surfaces were dusted with iodoform and three wire sutures introduced, resulting in a complete restoration of the perineal body.

On the third day after delivery, the temperature reached $102\frac{1}{5}^{\circ}$ F., and varied until the end of the third week between 99° and 101°. On the fourth day, she complained of severe pains in the lower part of the abdomen. Three weeks after delivery, the fundus uteri was yet only two inches below the umbilicus. There was a little tenderness and

swelling of the left broad ligament. But at no time the patient made the impression of being very sick. There was nothing remarkable about the lochial discharge, and the vagina was never examined with the speculum, nor did she have any intra-uterine injection, nor any local vaginal treatment beyond an injection of a two-per-cent. solution of carbolic acid three times a day. In the second week of November, she was somewhat nervous. On the 25th of that month, the forty-fourth day after delivery, I made a thorough bimanual examination from the vagina, and found the fundus uteri on a level with the brim, the whole organ freely movable, and nothing abnormal. Two hours later, while sitting upon a chair, the patient passed through the vagina an almost cylindrical, slightly pear-shaped body, six centrimetres long, and 2.5 thick. Its surface was whitish, the interior of a bright red color, like a piece of fresh meat. It had no bad smell. Microscopical examination showed it to be composed of smooth muscular fibres, partially in a state of fatty degeneration, and interspersed with inflammatory elements. The body was not in the vagina when I examined it two hours before, but the manipulation of the womb had probably stimulated this organ to contraction, and caused the expulsion of the body concealed in its interior. In this case there was no diphtheritic inflammation of the vagina nor any fetid discharge. The slow involution, the pain, the soreness, and the moderate fever were the only signs of an abnormal process being present.

Case 3.—Sarah L., æt. eighteen, German, primipara, was delivered Nov. 23, 1882, by an assistant. Forceps applied low down; perineum intact. The patient did well for a week, except that the uterus remained in a state of partial subinvolution. The temperature was below 100°. As it had risen to 101° in the evening of the 29th, I examined her the next day with the speculum, and found diphtheritic patches in the vagina and on the cervix. These were touched with a fifty-per-cent. solution of chloride of zinc, and the uterus washed out with two-per-cent. carbolized water and injected with about one ounce of an eight-per-cent. solution of chloride of zinc.

The next day (Dec. 1st), the uterus was washed out with two-per-cent carbolized water, which brought away a small amount of shreddy tissue.

On the next day (Dec. 2d), a new suspicious spot was observed on the cervix, which was touched with the strong solution, and the uterus was injected with the milder.

Two days later (Dec 4th), a few new patches were touched in the vagina. No intra-uterine injection was given.

The next day (Dec. 5th), a new spot was found on the cervix, which was touched as before, and the cavity was treated as described above. After that the sloughs began to clear off, and no new places were at-

tacked. The patient felt well; the appetite was good, and the temperature became normal.

On Dec. 11th, eighteen days after delivery, she passed from the vagina a flat, pear-shaped piece of tissue measuring six centimetres in length, 3.5 in width, and 1.3 in thickness. It smelled fearfully. It was full of small openings, some round like pinheads, others linear, two millimetres in length—uterine sinuses. The outer surface was of a light gray color, the interior of the tissue rosy, but not so fresh-looking as in the preceding case. On microscopical examination, it was found to be composed of smooth muscular fibres, partially in a state of fatty degeneration, and interspersed with inflammatory elements.

On the 13th, the sloughs produced by the cauterization, were entirely cleared off. After that she continued doing well, and was discharged when the granulating surfaces had healed.

Only one evening (Dec. 5th), the temperature reached 102½°.

Case 4.[1]—Ellen C., æt. thirty-nine, multipara, was delivered Oct. 19, 1882, at about eight months of utero-gestation. The labor was normal up to the third stage. Credé's method of expression, which I always use, having failed to deliver the placenta in an hour and three quarters, the house-surgeon Dr. Samuel Pierson, introduced his hand, and found the upper part of the placenta attached to the fundus, from where it was peeled off with great difficulty. The organ was found to be composed of two parts joined by a membranous portion. Immediately after the removal of the placenta, the uterus was syringed out with warm two-per-cent. carbolized water. The next day the temperature rose to 102½°, and continued more or less elevated till Nov. 5th, the maximum (103¾°) being reached on Nov. 1st.

The uterus underwent normal involution, but there was some fetor to the lochia from the first. The uterus was syringed out two or three times daily, with warm two-per-cent carbolic solution, but never were any shreds discharged. The case was diagnosticated as a low grade of septicæmia, and treated with quinine, carbolic acid internally, and stimulants.

On the seventeenth day after delivery (Nov. 5th), the patient passed from the vagina a large, flat body, measuring twenty by thirteen centimetres. The thickness varied very much. While some places were as thin as paper, others, even after the specimen had been for a long time preserved in undiluted alcohol, were a centimetre thick, and the house-surgeon described the fresh specimen as reaching, in some places, an inch in thickness.

Microscopical examination showed a much more advanced degree of fatty degeneration than in any of the other cases. Large spaces were ex-

1. The expulsion occurred earlier than Case 3, but the specimen was supposed to be placenta, and the microscopical examination was not made until the other cases had been observed.

clusively composed of fine granules, which, by different focussing, appeared black or shining. On the other hand, there were by far not so many inflammatory elements.

The uterus was at once syringed out with carbolized water. The next morning the temperature was normal, and so continued. After staying some little time in the convalescent ward, the patient was discharged well.

CASE 5.—Johanna B., æt. twenty-one, born in the United States, primipara, was delivered January 10, 1883, after a normal labor. The next day, the fundus of the uterus and both groins were found very tender. The involution was slow, the regions of the broad ligaments became indurated, the tongue was coated, and on the third day the temperature rose to 101° F. She was treated with ice bladder, tincture of iodine, ergot, opium, quinine, and intra-uterine injection of two-per-cent. carbolic acid solution. From the 23d to the 25th she was covered with erythematous eruption. The lochia were free, but fetid and dark.

On the 26th all pain and tenderness had disappeared, and the fundus stood three inches under the umbilicus, but a few days later the tenderness returned, and every afternoon there was a rise in the temperature to 101° to 101½°, accompanied by flushing of the face, and a burning sensation in the cheeks. The lochia were copious, purulent, and fetid. Specular examination (Feb. 5th), revealed only a granulating os, which bled on the slightest touch. The intra-uterine injection was repeated a few times, and brought shreds and bloody clots out, besides pus.

On February 10th a fleshy mass was found in the oakum with which the vulva was covered. It measured 7.5 by 2.5 and 2.0 centimetres. It has a very disagreeable odor. The surface was grayish, the interior flesh-colored. In the substance were seen large sinuses, some of which were empty. Microscopical examination showed that it was composed of smooth muscle fibres in a state of fatty degeneration, interspersed with numerous inflammatory elements.

After the expulsion of this body, the uterus contracted quickly, the fetid discharge disappeared, and all signs of inflammation disappeared, and she left the hospital a few days later in excellent health.

CASE 6.—Julia S., æt. twenty-two, born in the United States, secundipara, was delivered January 3, 1883, after a normal labor. Three days later the fundus and left groin became quite tender, and the lochia slightly fetid. Soon both groins became firm and tender, the abdomen somewhat tympanitic, and the tongue coated. The temperature reached 102 2-5°. A similar treatment was instituted as in the preceding case.

An abscess formed in the left breast and was very slow to heal. She coughed, and stethoscopy showed the existence of chronic pneumonia in the apex of the right lung.

The lochia became very profuse and fetid. On Feb. 19th, forty-seven

days after delivery, there came a sudden gush of lochia of dirty white color and intensely fetid odor. Upon examination, a mass was found protruding from the vulva, which could not be detached. By means of a speculum, it was found to adhere to the interior of the cervix, and was cut away with scissors. It was a black membrane body, measuring ten by 4.5. and 0.3. to 0.7 centimetres, having an offensive odor and showing numerous apertures exactly like the other specimens.

From this time the patient began to improve rapidly. The uterus retired behind the symphysis pubis, the appetite became good, the cough diminished, she felt well, gained flesh, and is at the hour of writing this in full convalescence.

My six cases, Dr. Noeggerath's case (the same as Dr. Kucher's), and the two described by Suromiatnikow, were all puerperal. The latter took the condition for typhoid on account of the high temperature, but this may as well have been due to septicæmia. In two of my cases was found the characteristic diphtheritic infiltration of the vagina and cervix, not only occurring in wounds, but likewise appearing in places where not the slightest abrasion was visible, and all these occurred at a time when we had many other diphtheritic cases, one of which died. In this last case the diphtheritic nature of the disease was not surmised, because nothing was to be seen in the vagina, and the mucous membrane of the cervix was so little effected, that, with the limited experience we then possessed with this dangerous disease, we did not recognize the character of the affection. But as this case throws much light upon the way in which these large bodies become detached I mention what the autopsy revealed.

Autopsy on Hanna D., thirty-eight years old, born in Ireland, delivered Nov. 1st, 1882, died Nov. 8.—The fundus reached up to a distance of two inches from the umbilicus, although the patient had lived a week after confinement. The lower edge of the omentum was adherent to the fundus on a small spot, which had a yellowish-green color. No other peritonitis was present. The uterus was enormously increased in bulk. It was nine inches long, five inches between the tubes, and one inch thick, except on the placental site, which was found on the anterior wall, and where it measured two inches.

From the external os uteri to a short distance above the internal os, the prominences of the mucous membrane were covered with a yellowish diphtheritic exudation, which was not easily removed by scraping. Surrounding either uterine opening of the Fallopian tubes was found embedded in the tissue a similar patch of diphtheritic exudation about the size of a three-cent piece. From these points the diphtheritic exudation extended out toward the subperitoneal part of the wall, apparently following the uterine vessels.

The wall was very flabby, and the red color was variegated by yellow-greenish spots. At a few places a thin yellowish material could be

squeezed out from canals, which seemed to be the lymphatic vessels. The broad ligaments, ovaries, and tubes were about normal.

Here, then, we have a case of diphtheritic metritis. When we bear in mind the large size of the womb, the enormous thickness of the walls, and the way in which the diphtheritic infiltration, from a small spot on the inner surface, spread far away near the outer surface, we can understand how these large, thick bodies can be cast off.

All the cases showed more or less marked symptoms of metritis, such as swelling and tenderness of the womb, purulent and often fetid discharge, and moderate fever. The time when the expulsion occured varied from the seventeenth to the forty-seventh day after delivery.

This disease is entirely different from what is called gangrene or putrescence of the uterus. In the latter affection, parts of the interior surface are reduced to a black, jagged, fetid slough. In our disease, large pieces of comparatively normal, merely inflamed, tissue are thrown off. Sometimes there is no fetor whatever to the lochia, or to the piece itself, and the patient does not even appear to be seriously ill (Case 2).

The microscopical examination shows almost the same in all the specimens. The bulk is made up of smooth, muscle fibre, in a more or less advanced stage of fatty degeneration. The amount of connective tissue between the bundles and cells is more or less considerably increased, and it contains more or less numerous small round cells. We find, furthermore, thrombi in the process of organization, being composed of a network of fibrin with interspersed round cells, and, finally, numerous veins and capillaries filled with blood.

If anybody should ascribe the formation of such loose bodies to the action of the chloride of zinc, I would call attention to the fact that this treatment was only used in the two cases in which the diphtheritic process was visible in the vagina and on the cervix. With as little ground is the disease attributable to the use of ice-bags instead of poultices, which is the common treatment in this country, for the ice-treatment has superceded the poultices in Germany many years since, and there the disease has not been noticed.

If we are allowed to form an opinion from the small number of cases known, the immediate danger as to life is not very great. Of all the nine cases, my first patient was the only one who died, and her death was accidental. But, nevertheless, the condition is a very grave one. This patient would not have been killed by a rupture of the uterus, due to an intra-uterine injection, if her uterus had not been reduced to the thinness of paper, besides being actually perforated and communicating with the intestines. Several of the other patients showed evident symptoms of a slow septic absorption. Finally, there is a great danger lurking in the future for these women. The muscular tissue is not replaced. The only case that ended fatally showed that the diphtheritic process had been

checked, and all ulcers were healed with an enormous loss of substance. Consequently, these women, in a succeeding pregnancy, will be very liable to sustain a rupture of the uterus.

Dissecting metritis will, as a rule, not be diagnosticated before the process which detaches a part of the uterine wall from the rest of the organ has run its course. No particular treatment is therefore required. If the presence of the loose body be diagnosticated, it would seem wise to try to draw it out with a pair of forceps, and even to dilate the cervix, if necessary, for the accomplishment of this purpose. The diphtheritic inflammation I treat, as above described, with chloride of zinc. Tincture of iodine, iodoform, and concentrated carbolic acid have proved insufficient in my hands, while the chloride of zinc has given excellent results. The application is so painful that it is not only humane, but safer, in order to avoid shock, to make it under the influence of an anæsthetic. The general treatment consists in carbolic acid, quinine, and stimulants. The profuse purulent or dirty and offensive discharge calls for disinfecting intra-uterine injections. Where diphtheritic infiltration is visible, I use chloride of zinc, eight per cent., repeated according to circumstances, *i. e.*, the extension of the diphtheritic process of a bad characterter of the discharge from the womb. In the other cases I use carbolized water, two per cent., repeated two or three times a day. In case 6, the general condition of the patient being very unsatisfactory, I used instead of carbolic acid a concentrated solution of boracic acid (four per cent.) once a day.

The slough produced by the cauterization with chloride of zinc, comes off in about a week, and cicatrization follows in another week or two, according to the size of the denuded surfaces.

Of the specimens referred to above the first four have been demonstrated and microscopically examined in the Pathological Society.

II.—GYNECIC.

A Case of Hysterectomy, with a New Clamp, for the Removal of Large Uterine Tumors.—No department of surgery has made the same advancement within the last thirty years, as that of pelvic surgery by abdominal section. Ovariotomy, oöphorectomy or Battey's operation, the removal of the uterine appendages or Tait's operation, oöpho-hysterectomy or Porro's operation, gastro-elytrotomy or Thomas' operation, extirpation of the uterus or Freund's operation, and hysterectomy or Kimball's operation, by which is meant the removal of the whole body or any section of the uterus, with tumors inseparable therefrom. These form a list of surgical achievements, within a short period, which every gynecologist is proud to look at to-day.

Thirty years ago, I heard a surgeon say (than whom there was not one of his day, in our land, more distinguished), that any man who perform-

ed ovariotomy should be prosecuted for manslaughter. He had no doubt been brought to this conclusion from having lost every case upon which he had operated. The mortality of this operation has now been reduced in the hands of some to about five per cent.

Up to thirty years ago, there had not been one successful case of hysterectomy (as above defined); when our distinguished countryman, Gilman Kimball, in 1853, gained for America in this operation what our no less distinguished countryman, Ephraim McDowell, gained in ovariotomy—the first success.

Mr. Bantock tells us that "America has the credit of the first three successful cases of hysterectomy, in those of Kimball, Burnham, and Boyd, and that twenty years then elapsed before the first successful case in his own country;" so that it may be truly said that it is only within the last ten years that hysterectomy has been recognized as a legitimate operation, and this grudging recognition has been forced upon the medical world by such men as Bantock, Keith, Savage, Péan, Hegar, Köberlé, Olshausen, Kimball, Thomas, and others.

Bantock has operated 26 times with 7 deaths,
Keith " " 18 " " 1 death,
Savage " " 6 " " 1 "
Hegar " " 12 " " 1 "
Olshausen " " 12 " " 4 deaths,
Péan (in his first three years' experience) operated nine times with two deaths.

I will not multiply statistics. These are sufficient to show the achievements made in this operation within the last ten years, and to make us feel assured that the future of hysterectomy will soon be what ovaritomy is to-day.

Few are the operators in abdominal surgery who have not consigned many women to lingering, painful lives, and certain death, because they presented uterine, and not ovarian tumors; and even after opening the abdominal cavity, most of us have been too glad to make a safe retreat, when the uterus was involved and not the ovary. I can recall a number of cases which I have refused, and some from which I have safely retreated, upon which I should not now hesitate to perform hysterectomy with good expectations of success.

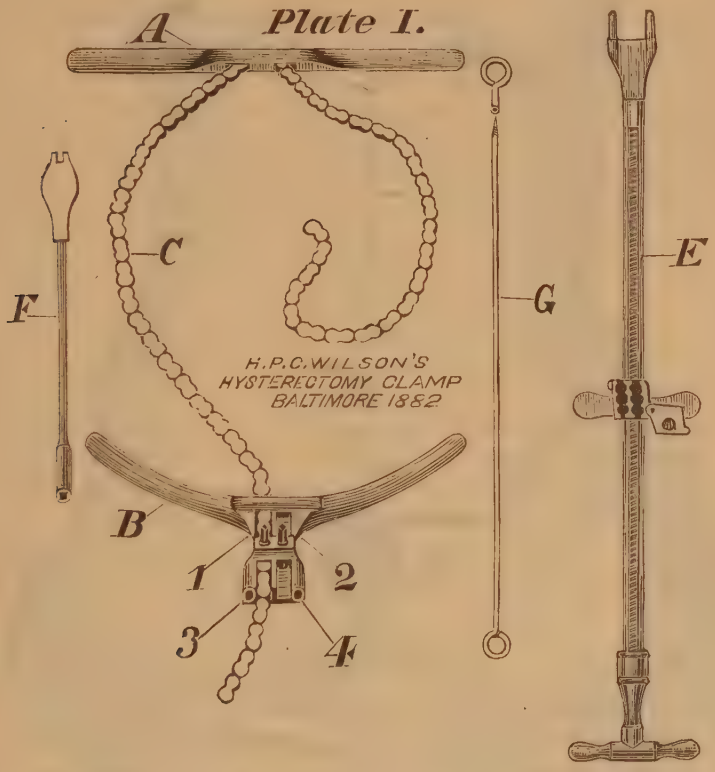
The results of Bantock, Keith, Péan, and Hegar have convinced me that the extra-peritoneal is the most desirable method of treating the stump, and in view of this, I desire to call the attention of the profession to my chain-clamp for hysterectomy, when necessary for the removal of large uterine tumors. It was suggested to me by a case of very large fibro-sarcoma involving the whole body of the uterus, and which I was sure would require a clamp much larger than any at my command.

I had not, nor could I obtain, nor had I ever seen a Köberlé's serre-

nœud until shown me by a friend, Dr. Garrigues, after my clamp had been made, and used in the operation reported below. My inability to obtain Köberlè's, and my ignorance of the existence of Cintrat's, necessitated my devising some clamp equal to the emergency before me, or else abandoning the woman to a speedy death.

Thus, with the valuable aid of Mr. Charles Willms, the ingenious surgical instrument-maker of this city, I soon had ready for use in the case below, the following chain-clamp.

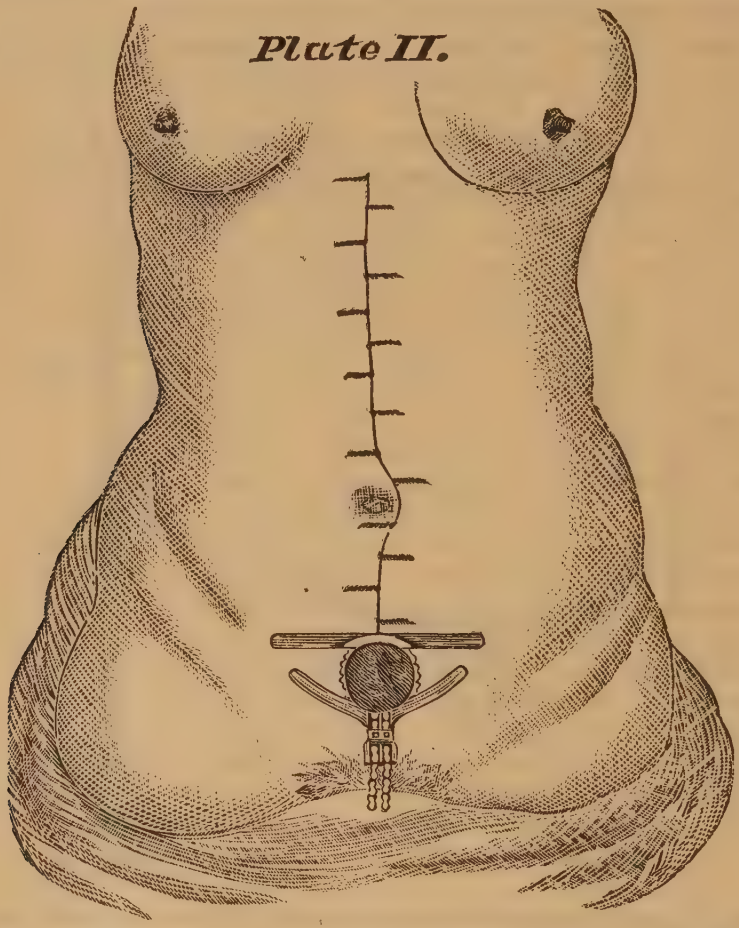
As seen in plate I. it consists of; two cross-bars, A and B; a chain C; a handle, E; two screw locks (1 and 2) in bar B; a key, F.



The cross-bars, A and B, are five inches long, oval in shape and without any angles, so as to rest comfortably upon the abdominal walls, across the abdominal incision, and there support the stump of the tumor, securely clamped by the chain C. Bar A is straight, and through it plays the chain C. Bar B is an arc of a circle, with two fenestræ, through which play either end of the chain C. It also contains two screw locks (1 and 2) by which the chain C is securely fixed, with the key F, when it has been sufficiently tightened by the screw power contained in handle E.

The chain C may be of any length desired. With the case below (in which I first used my clamp), I required a chain seventeen inches long, to enable me to encircle the pedicle, and pass its ends through the fenestra in bar B, and fix them to the screw power in handle E, with ease to myself.

The handle is a fork, with two prongs, for insertion into two holes (3 and 4) in bar B, when we desire to tighten the clamp, after we have



thrown it around the tumor. The screw power in the handle is very similar to that used in an écraseur. After the clamp has been sufficiently tightened and securely locked with the key F, handle and key are removed.

G, in Plate I., represents a needle, six inches long, made for me by Mr. Willms, for transfixing the pedicle just without the clamp; and thus guarding it against all possibility of slipping, during the violent retchings

which sometimes follow these operations. From its construction, I am sure it would be impossible for my clamp to slip; but in the case below, I used the needles to make "assurance doubly sure," as it was the first case in which I had used it. These needles are, no doubt, similar to those used by other operators, though I have not seen them.

Near one end, this needle has a sharp point, and above this point a screw thread, for screwing into a shield, after it has transfixed the pedicle.

The advantages of my clamp are, that it is light, is easily thrown around any size tumor, and can constrict any size pedicle, can be readily tightened or loosened at will, and as the chain plays through two bars, which rest upon the abdominal walls, it is always above the surface of the skin and no portion of the chain or sloughing pedicle can be dragged down below this surface, as may occur with Köberlé's and Cintrat's serre-nœuds, notwithstanding the pedicle may be transfixed with long pins. I think it is far superior to the latter instruments, in the cases for which it is intended, and supplies a need which the clamps now in use cannot supply. Some of them are too cumbersome for convenient use.

In Plate I. may be seen the different parts of the instrument.

In Plate II., the clamp is in position, constricting a pedicle from six inches in diameter, to one, two inches in diameter.

It was devised for and employed in the following case;

In April, 1882, Mrs. J. W. K., æt. thirty six, of Baltimore, the mother of ten children (six living), came to my office to consult me about an abdominal tumor. She was immense, and suffering with dyspnea and great pressure on the abdominal and thoracic organs, although she had only been cognizant of the tumor's presence a little over two years. Her youngest child was two and a half years old when she first felt the tumor situated in the right groin.

The examination at the first visit satisfied me that the tumor was thoroughly incorporated with the uterus, and was probably fibro-cystic in character. The uterine cavity measured four and a half inches in depth, and was inclined to the right side.

I told her the character of the tumor, and that an operation was unjustifiable, as she would probably die from the same. She was requested to come and see me once a month, that I might advise with her and keep her as comfortable as possible. This she did till I went to Europe in July. When I returned, the last of September, she was among the first patients to call on me. She was anxious for an operation. The tumor was steadily enlarging and her sufferings greatly increasing. An examination at this time still satisfied me that the tumor was fibro-cystic, and so situated and attached that an operation was unjustifiable. The sound only entered four and a half inches, which was too deep for an ovarian tumor, but much too shallow for the immense tumor, apparently attached

to the uterus. As she had borne so many children, and the tumor appeared so soon after the last child, I felt that the enlarged uterus might be due to subinvolution, and as I could distinctly move the uterus with the tumor, it might after all be ovarian, and not uterine. Still I put her off.

She came to me again the latter part of November, clamoring for an operation on account of her sufferings. Feeling the possibility of a mistake in my diagnosis, and that if the worst came to the worst, and I was unable to close the wound and make a safe retreat, I could perform hysterectomy; I told her (after explaining all the dangers to herself and her husband) that if she would go to St. Vincent's Hospital, I would perform an operation, and I give her a chance for life.

She entered the hospital December 5th, 1882, before I was ready for her. I had many cases there at that time awaiting operations, and I had no clamp which could grasp the large pedicle which I was sure I should find, were I forced to hysterectomy. I was glad to gain time, while Mr. Charles Willms completed my chain clamp, described in the earlier part of this paper. As it turned out, it was well I had taken precautions for every emergency, or I would not have been able to complete the operation with the instruments at my command.

On Wednesday, December 13th, 1882, at 2 P.M., I performed hysterectomy on Mrs. K. Her bowels were thoroughly moved this morning from a dose of compound liquorice powder, taken the night before. At 9 A.M. she took ten grains of quinine; at 12 M. she took a one-grain opium pill; at 1.30 P.M. she took one and a half ounces of whiskey. She was placed on the table at 2 P.M. and rapidly chloroformed by Dr. Gorter. The atmosphere of the room had been carbolized, but the spray was stopped when the operation commenced. All instruments, ligatures, sponges, and dressings were used out of carbolized water. All assistants' hands were washed in the same, and my hands were thus cleansed from time to time. My son, Robert T. Wilson, and Drs. William P. Chunn and E. Schaeffer assisted me in the operation, Drs. James Butler, O. J. Coskerry, and William Green were present with their valuable counsel.

She came under chloroform promptly and comfortably. I made an incision of four inches in the medium line, between the umbilicus and pubes. Very soon I cut through large veins, which bled so profusely that I was compelled to tie them. The veins and hemorrhage were just as we usually encounter when entering the abdomen for a uterine tumor, but which I have never encountered when making such entry for an ovarian tumor.

When within the abdominal cavity, there was presented to my view a dense, white, and shining tumor, perfectly unyielding to the touch. At the lower part of the incision there were such adhesions that I could not enter my hand for exploration; so I enlarged the opening to seven inches.

I then passed my hand around and behind the tumor, and found it thoroughly incorporated with the uterus—firmly attached to the bowels and liver—with the omentum spread out all over the upper and front part of its surface, and containing a network of viens, many as large as my little finger. The lower part of the tumor (nearly up to the umbilicus) had such firm attachments in front that I could not approach the uterus except from behind. I did not realize at this stage of the operation that this was the bladder, which was spread out over the whole lower anterior surface of the tumor, and so intimately connected with it that no line of union could be discovered. It had grown up with the tumor until it was an immense bag, firmly blended with it nearly as high as the umbilicus.

In my manipulations—to make an exact diagnosis—though very gentle, I ruptured small vessels enough to pour out considerable blood. The tumor was immovable and solid, firmly attached above, below, behind, and in front. With my hand and arm in the abdominal cavity and around it, I could not lift or move it one particle. It seemed impossible that it could be removed without the patient dying on the table; and yet, to close the abdomen with the damage done by manipulation and leave the blood (which could not be removed) for decomposition, would be but to abandon the woman to certain death.

I was not long in deciding to remove the tumor with the uterus and its appendages as the only chance for life. To do this, I was obliged to prolong the abdominal opening upwards to within one inch of the ensiform cartilage, and downwards to within one inch of the pubes. The immense omentum, with its enormous veins, was tied in sections with carbolized silk ligatures and cut away from the tumor. I was then able to get my hand to the top of the tumor in front, and tear loose its attachments to the liver. It required all my strength, assisted by Dr. Robert T. Wilson, to raise the upper end of the tumor upwards and forwards, to find that it was inseparably attached to the small intestines by a band three inches wide and half an inch thick. This was transfixed with a needle, armed with a double carbolized silk ligature, which was cut and tied on either side, and the adhesion then severed.

Mine and Dr. Robert Wilson's strength was not sufficient to raise the tumor from the abdominal cavity, and to accomplish this, with a small carbolized rope, I passed a running noose around it, and, standing in a chair above the patient, Dr. Wilson, Jr., with my asisstance, lifted it out of the abdomen.

Even up to this point I had not realized what was the nature of the adhesions in front and below, and I was about to throw my chain clamp around the uterus, below the ovaries and Fallopian tubes, and just above the supra-vaginal junction (including the adhesions in front), when it occurred to me that I had better see where the bladder was. I passed my Simpson's sound into the bladder, and found that it entered its whole

length. By moving it from side to side, I marked out the line of the bladder's attachment to the tumor, which was nearly up to the umbilicus, and spread out like an apron over its whole anterior surface.

With the end of the sound as a guide, and point and handle of my scalpel, I dissected and tore and tore and dissected till I had separated the bladder from the tumor. When I was done, and had thrown it over the symphysis pubis to get it out of the way, it looked like anything but a bladder, and was three or four times as large. My chain clamp was now thrown around the pedicle as above described; the pedicle was transfixed close to and just above the clamp by two large pins, six inches long, and the tumor was cut away about half an inch from the clamp.

The pedicle was touched with Monsell's solution of iron. The abdominal cavity was thoroughly cleansed of all blood. Any oozing spots were touched with Monsell's solution. The abdominal opening was closed with fourteen silver wire sutures. A hard rubber drainage tube was inserted close to the pedicle, and the whole was dressed with a carbolized wet compress, an India-rubber cloth to catch any discharges from the drainage tube, and a flat carbolized sponge over the mouth of the tube. All was secured by a loose bandage.

The patient was put to bed with bottles of hot water around her and wrapped in blankets. She soon recovered from chloroform, and speedily reacted from shock. The operation lasted two hours, during which she was profoundly anæsthetized. At 10 P.M. her temperature was 99° and pulse 88. Ten drops of black drop were given at this hour, and six gtt. at 4 A.M. Slept during the night, and had slight nausea.

Thursday December 14th. To-day her temperature varied from 99⅕ to 101⅕°; pulse from 96 to 120; respiration from 32 to 38. Urine drawn three times to-day; good in quality and quantity. Milk and lime-water (half-ounce each) as often as desired. Got a pint during last night and to-day. Had twenty gtt. of black drop by the rectum at bed-time.

Friday December 15th. Temperature varied to-day from 98⅘° to 102°; pulse from 112 to 128; respiration from 25 to 28. Took ten gtt. of black drop and slept four hours last night. Got about three pints of milk and lime-water, in equal parts, and small quantities at a time during the night and morning. Much too much; but she loved it, and asked for it, and the nurse gave it to her. Has vomited hard curd, and had severe colic from undigested milk from 12 to 5 P.M. I then gave twenty *m* Magendie's solution of morphine hypodermically, which soon eased her, and she fell asleep. At 10 P.M. her mind was slightly wandering, from the anodyne, I think. I threw into the rectum three ounces of beef-tea and one and one-half ounce of whiskey. Nothing but ice into the stomach. The abdominal cavity was washed out to-day with warm carbolized water, but it came away sweet and clear. The pedicle was touched with carbolic acid twice daily, and, at the same time, every accessible

point about the clamp was well carbolized, and all dressings changed. Still, the sloughing pedicle was very offensive, and septicemia from this source was imminent.

Saturday, December 16th. At 8 A.M. temperature was 101⅘ °; pulse, 120; respiration, 24. Slept last night from four to six hours. Took into the stomach during the night three teaspoonfuls of beef-tea, one teaspoonful of whiskey, and one tablespoonful of milk, but they all nauseated, and were not repeated. She has been anxious for lager-beer for several days, and as she could retain nothing else, it was given. She drank freely of it; it settled her stomach and greatly refreshed her. The pedicle this morning was terribly offensive, and was disinfected as before. I passed a large size, flexible gum catheter through the drainage tube, and washed out the abdominal and pelvic cavities with a one-per-cent solution of warm carbolized water; it came away pure and clear. Her tongue was very dry; I gave three ounces of beef-tea and one and one-half of whiskey into the rectum, which was all retained. Her kidneys acted well. She has septicemia from the rotting pedicle. Has no peritonitis, no tympanites, no pain, no hemorrhage. Abdomen soft and pliable, and incision united by first intention.

At 1.30 P.M., temperature, 103⅗ °; pulse, 132; respiration, 32: Occasional nausea, but no vomiting. She drinks lager freely; it always settles her stomach and greatly refreshes her. Asked for a piece of stale bread, which she ate and enjoyed. Breath markedly sweet. Tongue dry. I removed the drainage tube, which was followed by a very offensive smell from the under part of the pedicle, where it came against the tube. I passed a large-size gum catheter into the abdominal and pelvic cavities, and washed them out thoroughly with carbolized warm water. It came away sweet and clear. The pedicle was well carbolized. I injected twenty *m* of quinia hypodermically; twenty *m* of Magendie's solution were given in the same way for great restlessness; three ounces of beef-tea and two ounces of whiskey were thrown into the rectum, and all retained. Bladder acting well.

Eleven P.M., pulse, 146°; could not get the temperature for great restlessness. Extremities cool. Evidently dying of septicemia from a decomposing pedicle. Mind clear. Retained her injections of beef-tea and whiskey into the bowels, and retained and enjoyed her draughts of lager-beer into the stomach up to the last.

Sunday, December 17th. Mrs. K. died at 9.30 A.M. to-day of blood poison from the sloughing pedicle, ninety-one and one-half hours after the operation.

It is of interest to note in this case:

1st. Ten carbolized silk ligatures were left in the abdominal cavity; they gave rise to no unpleasant symptoms.

2d. There were no indications of cellulitis or peritonitis.

3d. There was no tympanites; the abdomen was soft and pliable everywhere.

4th. There was no sanious discharge from the abdominal cavities through the drainage tube.

5th. The sloughing pedicle was terribly offensive, notwithstanding all my oft-repeated efforts to disinfect it. This was, no doubt, the source from which originated the septic matter that proved fatal to my patient

6th. I saw her dying from a simple cause, and was powerless to arrest it. In a similar case, I would, with my hypodermic syringe, inject the sloughing pedicle with carbolic acid from time to time, as well as wash it with the same externally.

7th. This patient ought to have recovered. She died of an accident that sometimes kills even in the simplest surgical operations.

8th. The tumor weighed upwards of fifty pounds; was a fibro-sarcoma. The uterus was completely imbedded in the mass. There was no line of distinction between uterus and tumor. The uterus did not bear any proportionate size to the tumor. Its depth from external os to fundus was only four and one-half inches.

9th. The pedicle, when cut through, measured on the tumor six inches; when constricted by my chain clamp, it measured two inches.

10th. The abdominal opening, which was from one inch below the ensiform cartilage to within one inch of the symphysis pubis, had perfectly united by first intention, showing that a long incision heals as rapidly as a short one. In abdominal surgery we should not embarrass our manipulations by too small openings.

11th. Lager-beer gave the greatest comfort to the patient. It refreshed and settled her stomach when nothing else would.—H. P. C. Wilson, M.D. of Baltimore Md., in. *Am. Jour. of Obstet.*

On Picric Acid as a Test for Albumen and Sugar in the Urine.—By George Johnson, M.D., F.R.S.—For the detection of Albumen, Dr. Johnson recommends that this acid should "be used in the form of a saturated aqueous solution, or in the form of powder or crystals. The aqueous solution is most suitable for home use, while the powder or crystals may conveniently be carried in a urinary pocket test-case. A saturated aqueous solution may be quickly made by adding about fifty times the bulk of boiling distilled rain water to the powder or crystals, a portion of the acid will crystallise out on cooling, leaving a transparant yellow supernatant liquid. This solution being added to an equal volume of albuminous urine in a test-tube, immediately coagulates the albumen. The coagulated picrate of albumen is soluble in alkalies; if, therefore the urine be highly alkaline, it must be acidulated by a vegetable or a mineral acid before adding the picric solution. In my numerous testings for albumen with picric acid, I have not once found it necessary to acidulate the

urine. The picric acid solution is itself sufficiently acid to dissolve the phosphatic sediment which results from boiling a neutral or alkaline specimen of urine. To detect a very minute quantity of albumen, the following method is the best. Into a test-tube about six inches long, the urine is poured to within two inches of the top: then, the tube being held in a slanting position, about an inch of the picric acid solution is gently poured on the surface of the urine, where, in sonsequence of its low specific gravity (1003), it only partly mixes with the upper layer of the urine; and, as far as the yellow color of the picric solution extends, there will be more or less turbidity from coagulated albumen, contrasting with the pellucid unstained urine below. If, then, the tube be placed in a stand the coagulated albumen will gradually subside, and form a delicate horrizontal film at the junction of the colored and the unstained stratum of urine, the yellow liquid above and the uncolored urine below being quite free from turbidity. If the urine should be turbid with urates, it must be cleared by heat before the addition of the picric acid solution.

"As a result of numerous observations, I have arrived at the conclusion that picric acid applied in this way is a more delicate, and, therefore more trust-worthy, test for albumen than nitric acid in cold urine, whether the latter be employed by the method of dropping the acid into the cold urine, or by pouring the urine on the acid previously placed in the tube. The simplest and most satisfactory mode of comparing the two tests as regards their relative delicacy, is to dilute a specimen of albuminous urine until one or the other test fails to act; and it will be found that the picric acid solution shows the presence of albumen diluted considerably beyond the point at which the nitric acid fails to give any indication. The picric acid too often cause an immediate albuminous opalescence in which nitric acid only slowly, and after an interval of some minutes, gives a similar, but sometimes a doubtful, indication." Dr. Johnson also describes a new process by which picric acid can be employed for detecting the presence of glucose in the urine.—*British Medical Journal.*

The Duration of Isolation of Subjects of Contagious Diseases.—M. Hillairet, in the name of a commission composed by MM. H. Rodger, Bergeron and Hillairet, read before the Académie de Médicine a report in reply to the inquiry addressed to the Academy by the Minister of Public Instruction, as to how long a pupil affected with a contagious disease should be kept away from school.

The report considered the following diseases: varicella, variola, scarlatina, rubeola, mumps, and diphtheria, and the conclusions are as follows:

Varicella, whose progress is often irregular, may require ten to twelve days for the fall of the crusts: The isolation should be about twenty-five days.

Variola has a prodromic period of three or four days; four or five days

of eruption; three or four days of suppuration; desiccation requires three days; fall of the crusts six days. Then comes a period of furfuraceous desquamation without definite limit. Isolation should not be less than forty days.

In scarlatina the period of invasion occupies from six to forty-eight hours, or exceptionally three days; the eruption is completed in from five to eight days; desquamation commences on the fourteenth or fifteenth day, and lasts from fifteen to twenty-six days. Isolation should last forty days.

Rubeola has a prodomic period of three to four days; exceptionly from six to eight, or even twelve days; the eruption is completed in twelve or forty-eight hours, then it declines for twenty-fours hours; desquamation lasts from eight to fifteen days. Isolation for forty days will be sufficient.

Mumps, as a rule, has a duration in ordinary cases of six; convalescence last from six to seven days. If any complication of metastasis occurs, it lasts usually about nine days. Isolation for twenty-five days is sufficient.

The duration of diphtheria is very variable, but isolation should be maintained for at least forty days.

The Commission consequently proposes the adoption of the following measures:

1. Pupils affected with chicken-pox, small-pox, scarlet fever, measles, mumps, or diphtheria, should be strictly isolated from their comrades.

2. For small-pox, scarlet fever, measles, and diphtheria, isolation should not be shorter than forty days; for chicken-pox and mumps, twenty-five days is enough.

3. Isolation should last until after the patient has been bathed.

4. The clothing worn by the patient at the time he was taken sick should be subjected to a temperature of 90° C. [194° Fahr.], and to sulphur vapor and then well scoured.

5. The bedding, curtains, and furniture of the sick-room should be thoroughly disinfected, washed and aired.

6. The pupil of a school, after recovery from one of the above contagious diseases, should not be readmitted to the school unless furnished with the certificate of a physician that the above precautions have been observed.

These conclusions were adopted by the Academy.—*The Canada Medical Record.*

The Effect of Working in Tobacco Factories upon Menstruation, Pregnancy and Lactation.—Since it has been observed that tobacco, and especially nicotine, increases the peristaltic movements of the intestines, some have supposed that it would have a similar effect in stimulating the muscular fibres of the uterus. So much has been said on this subject that the French minister of finance requested certain physicians to report as to the health of women employed in various tobacco manufacturing houses.

Dr. Piasecki, of Harve, gives statistics concerning five hundred and forty employes. Of this number, four hundred and eighty-nine were of proper age for menstruation. Of these three hundred and twenty-eight presented no irregularity. In some of the remainder the flow was too copious and in others too scant. Of the one hundred and twenty-eight married women, twenty-eight had aborted, the total number of abortions being forty-seven. Of these, the cause was unknown in thirty-five cases; in the remaining twelve, it was due to physical causes, as falls, etc. Of the three hundred and seventy-six children, which these women had borne since they began work in tobacco, two hundred and twenty-three had died. One hundred and two died in consequence of intestinal diseases; of these, eighty-three had been fed upon artificial food. P. concludes that no evil effect upon the sexual organs can be ascribed to the tobacco.

Dr. Poisson, of Nantes, found only eight anomilies of menstruation among one hundred employes. Of sixty-eight women, eleven had aborted, and in seven of these the abortion could be accounted for by causes outside of their employment. P. found that the women were frequently ill for the first few days after beginning the work, as one sickens while learning to smoke, but after that time their health is good.—*Schmidt's Jahrb.—Physician and Surgeon.*

Bibliography.

Manual of Gynecology. By D. BERRY HART, M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh, etc., etc. Vol. II, and A. H. BARTOM, M.A., etc.

A short time ago, we noticed in the *Gazette* the first volume of this really very valuable work. This second volume is the second volume of the series of the current year of Wood's Library of Standard *Medical Authors.* This volume embraces the following important topics: *Affections of the Uterus.* These chapters embrace all we desire to know of the tumors; the incidental diseases and all that is known of these conditions. Then we have, *Affections of the Vagina*; these chapters include Atresia, Vaginismus, Tumors, etc. Then we have *Affections of the Vulva*, with *Malformation Inflammation*, etc., *Rupture of the Perineum*, and the proper treatment has its due consideration.

There are some important *Affections of the Bladder and Rectum* that are duly and properly considered and treated. Take it all together, these two volumes—of the Manual of Gynecology afford all the information upon these topics that the general practitioner need care for.

The Physician Himself, and what he should add to his Scientific Attainments. By D. W. CATHELL, M.D. Late Professor of Pathology in the College of Physicians and Surgeons of Baltimore. Baltimore: Cushings & Bailey, 1883.

This is the third edition in a very few months of a very unusually good and entertaining book. The fact that in so short a time this third edition has a demand, is

evidence of the excellence of the book. The first edition was noticed in the *Gazette*, and we then thought it would deservedly meet with professional regard. We have been gratified with the journalistic approval that we meet in our exchanges. The truth is we have read nothing in all these latter days so full of meat as this little book of Dr. Cathell. Every paragraph—almost every line—has a good thought, or a wise suggestion. Indeed this is a book that you cannot review by chapters after any systematic plan, for every chapter and section is completely full of life and every young doctor should read this book to direct his path—every old doctor should read it to stimulate him to mend his ways.

The Diseases of Women. A Manual for Physicians and Students. By HEINRICH FRITSCH, M.D , Professor of Gynecology and Obstetrics at the University of Halle. Translated by ISIDOR FURST. 159 Wood Engravings. New York: Wm. Wood & Co., 56 & 58 Lafayette Place. 1883.

This is volume three of the Series of Wood's Library for the current year. It fully maintains the excellent standard to which the publishers have reached in the successive publications of this Serial. Prof. Fritsch is an authority in this department of medicine worthy of study. Indeed, perhaps much of the merit of this book is the individuality of the author. His methods are not at variance with established methods, and yet his plans of operation are frequently something peculiar and often suggestive; so too many of his instrumental devices are worthy of consideration. So take it altogether, the book has the freshness of a great deal of originality which compels one to read it more systematically than the reviewer usually does.

A Manual of Histology. Edited and Prepared by THOS. E. SATTERTHWAITE, M.D., of New York, Professor of Histological and Physiological Anatomy in the New York Post G aduate Medical College, etc., etc. In Association with Drs. Dwight Warren, Whitney, Blake, Williams, Simes, Westbrook, Wednt, Mayer, Amidon, Robinson, Birdsal, Delavan, Dana, and Porter. Second Edition, Enlarged and Revised, containing Two Hundred and Two Illustrations. New York: Wm. Wood & Co., 56 & 58 Lafayette Place. 1882.

The first edition of this excellent work was fully noticed in this journal. As we then said, everything pertaining to the microscopical study of tissues is fully and carefully presented in this book of Dr. Satterthwaite. In this new edition all that has been overlooked is brought up Indeed the histological student will find everything placed in convenient order for study. We advise our young friends especially to buy this book and study its chapters, so full of rich material.

The Physician is a Good Man, Skilled in Healing.—Such is the title of a very elegant address delivered by Prof. THEOPHILUS PARVIN to the recent graduating class of the University of Louisville. We had read it with great pleasure as it appeared in the *Medical News* and now express our thanks for the reprint, issued by John P. Morton & Co.

Malarial Poison.—Our former friend Dr. Z. Orto, of Walnut Ridge, Ark., read a paper on this subject before the Arkansas State Medical Society. It is a careful review of the origin, that is the cause or causes of malarial disease, and the paper is well written; but after all it is largely speculative—and Dr. Orto will probably bear to be reminded that some of our recent authorities are skeptics as to the existence of such a thing as malaria at all.